

Young children's reading self-concept

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Positive classrooms. Classroom interactions, a psychological paradigm and the search for effective interventions for behaviour.

“Positive reinforcement for children is analogous to the sunlight a plant must receive for optimal growth.” (Flora, 2004)

This paper examines positive behaviour management and the use of positive reinforcement in classrooms. It reviews criticism of behavioural approaches including those concerning motivation and the validity of behavioural ideas in classrooms and it examines research on intervention effectiveness. There is not space, however, for a comprehensive review of the entire paradigm of behavioural psychology, hence the focus on the use of positive reinforcement. (For fuller discussions of behaviourist theory and alternative ideas see (Santrock, 2004, Flora, 2004, Miller, 2003 or Lavigna & Donnellan, 2000). The paper will review some recent attempts to apply behaviourist thinking to classroom practice from researchers who assert that modern behaviourism is ‘not what it used to be’ (Malone, 2003).

The context for the review is work being completed in the author’s Local Education Authority with a secondary school where there have been significant concerns about difficult behaviour. The broader context for secondary schools has been shaped by recent government guidance (Department for Education and Skills, 2003, 2004). The guidance recommends that schools emphasise positive behaviour management. The core aspects of a positive approach are highlighted as; encouraging positive behaviour rather than punishing bad behaviour, distinguishing between appropriate and

inappropriate behaviour and promoting consistency throughout the school. The guidance makes specific recommendations about the rates of negative and positive feedback teachers should aim to give in classrooms.

The use of behavioural ideas is a much debated area of professional practice. In recent editions of professional journals discussion continues. The popularity of behaviourism as an approach to casework was examined as part of a survey of Educational Psychologist assessment of children with emotional and behavioural difficulties Rees, Farrell and Rees (Rees, Farrell, & Rees, 2003). They found that behavioural interventions (either behaviour management or behaviour modification) were noted by 10 of the 47 educational psychologists who responded making it the most popular category.

Another example is a recent examination of evidence based practice by Miller and Todd (2002). The authors highlight a continuum in research approaches with constructivist social psychology contrasting positivist behavioural psychology. A need for greater convergence is noted by the authors rather than perpetuating the dichotomy.

Miller (2003) in reviewing the contribution of behavioural approaches to classroom practice writes that “behavioural psychology is a vastly incomplete psychology as a framework for helping schools to become more satisfying and productive environments for all concerned”. The first part of the argument presented here is that despite it’s limitations criticism of behaviourism should be considered carefully by practitioners as some is based on unsound argument and weak research. A second key

argument is that in spite of its limitations the behavioural paradigm still has direct relevance to classroom practice and has the power to help teachers make a difference.

The Practice context for this review.

As part of an important treatise on the value of behaviourist theory in education Blackman (1984) argued from a theoretical position that behaviourism lead to teachers being in control;

“Teachers form a prominent part of the social environment of their pupils and can therefore be expected to influence their pupils’ behaviours through their own behaviour” *p8*

Blackman’s statement presents the challenge to teachers that they are the ones who can make a difference when behaviour is problematic. Believing that you can make a difference yourself as a teacher carries risk: by implication if behaviour does not improve it may be you who are at fault. Teacher attributions about the causes of behaviour difficulties often lie with children and parents rather than with aspects of teaching or the school. And indeed there is research that would support this view with evidence that conduct problems are resistant to interventions and persist over generations (Smith & Farrington, 2004). But the findings that teachers tend to look to external causes has been contrasted with a more positive view of the efficacy of teacher action to influence difficult behaviour where teachers have had positive experiences with successful interventions (Miller, 1996). Other research has found

that teachers who feel they have no means of influencing particular types of behaviour may be at higher risk of burnout (Hastings & Bham, 2003) suggesting that this self efficacy is significant for teacher's wellbeing as well as classroom effectiveness.

The relevance of these points was brought clearly into focus while working with a secondary school in Special Measures. Since entering Special Measures in 2003 the school had been regularly inspected by Her Majesty's Inspectorate (HMI). The inspection immediately preceding the request for Psychology Service involvement identified developing a positive approach to behaviour management as a key objective for the school.

The school faced many challenges; pupils have generally failed (some opt out of) 11+ examination, it is in a deprived ward with 30% of the 600 or so pupils entitled to free school meals. The school does not meet national floor targets for the number of children attaining grades A to C in their GCSE examinations.

The concerns raised during initial discussions with departments indicated that confidence of the teachers to impact on pupil behaviour was low. This low morale was compounded by difficulties with staff retention: over 30% of teachers were newly qualified, overseas teachers in their first UK teaching post or unqualified.

There are also challenges when working in such an environment: Work is being undertaken in a highly charged environment where staff who do not necessarily have positive regard for colleagues or senior managers. Divisions between old and new staff created factions, cliques and distrust between colleagues. With stress levels were

already high and there was significant resistance to external support that purported to have 'the answers'.

The aims of the work included specific objectives to:

- 1) Enable productive discussions around behaviour between colleagues rather than feeling that talking about behaviour was simply 'moaning' or 'offloading'.
- 2) Establish core teacher behaviours that might contribute to a consistent school approach to positive behaviour management.
- 3) Help teachers move away from blaming external factors for pupil behaviour to a point where they had more confidence in their own impact on behaviour in their classrooms.

The headteacher was keen that the ideas were 'embedded' and the notion of collegial support became key to empowering staff. Point 1 above therefore became a focus for long term work that is still underway, but before this came the task of presenting a rationale for action.

The first stage was to elicit from staff the teacher behaviours they considered basic level skills and those that might be considered high level skills. This was intended to begin the sharing of strategies for positive behaviour management as quickly as possible. Teachers were asked to rank common behaviours into three levels; 'core behaviours' that all staff should be able to use and then two levels of more advanced behaviours that were used occasionally or required a higher level of skill on the

teachers part. An overall ranking was then arrived at by scoring the number of times staff ranked each behaviour individually. (See appendix 1).

The second stage was data collection on the use of positive reinforcement in the classroom. Classroom observations were carried out with nearly all teachers. The list of behaviours and the data from observation then formed the basis of a presentation to staff which in turn lead to a programme of workshops for problem solving discussions with staff teams.

Description of the data from classroom observation.

For brevity it is necessary to focus on the data around positive feedback in the classrooms rather than other elements of the work in school. All charts presented here were used in the presentation to staff.

Using the Observing Pupils and Teachers In Classrooms (OPTIC) schedule (Merrett & Wheldall, 1986) data was collected from 42 lessons. Table 1 shows the categories for teacher behaviours.

Table 1. Categories of teacher behaviours in OPTIC observation schedule with examples.

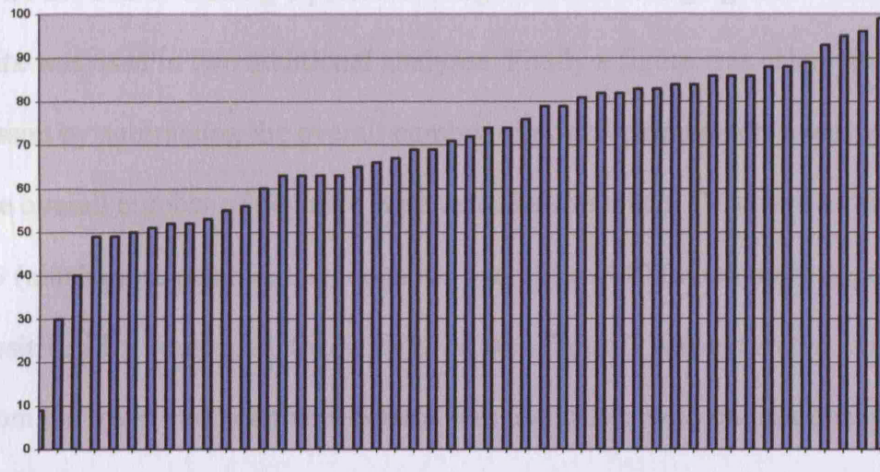
	Academic	Social
Positive	<p><i>A positive or approving statement or action in response to the work in hand or a task set.</i></p> <p><i>'Good answer'</i></p> <p><i>'Well done'</i></p> <p><i>'Fantastic work'</i></p>	<p><i>A positive or approving statement or action in response to behaviour</i></p> <p><i>'Chris you've got your hand up, well done'</i></p> <p><i>'Thank you' in response to a requested behaviour change.</i></p>
Negative	<p><i>A negative or disapproving statement or action in response to the work in hand or a task set.</i></p> <p><i>'No that's wrong'</i></p> <p><i>'This work is sloppy'</i></p> <p><i>'Come on you are working very slowly today'.</i></p>	<p><i>A negative or disapproving statement or action in response to behaviour.</i></p> <p><i>'I am very disappointed with your behaviour'</i></p> <p><i>'You are letting the class down'</i></p> <p><i>'You can not be trusted'</i></p> <p><i>Pupil's name used with harsh tone of voice.</i></p>

Pupil behaviours were identified as either on task or off task. On task behaviour included doing what you have been asked, waiting for instructions quietly and, during changes in activity, moving sensibly around the classroom. Off task behaviour included talking that precluded task completion, disruptive behaviour and not attending to teacher input.

The results were presented to staff at a meeting after school. The mean on task figure was 69% (range 9% to 99%).

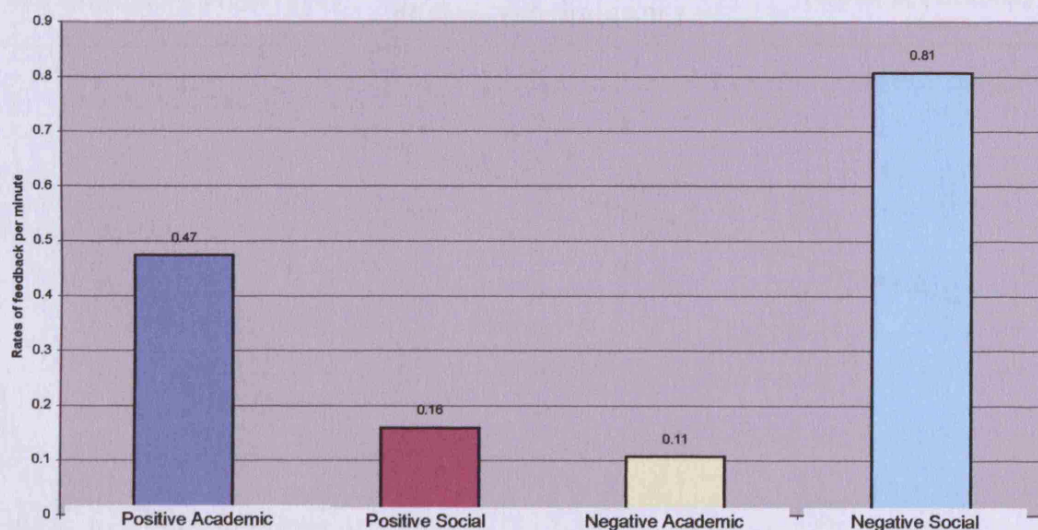
Figure 1 gives the percentage on task for each of the lessons observed. The large range can be seen, although note that the majority of lessons have rates of on task behaviour at 60% or above.

Figure 1. Percentage of on task behaviour for each lesson observed.



Looking at teacher behaviours figure 2 shows the number of statements made overall each minute for each of the four categories of teacher behaviours. As can be seen negative social feedback was the most common form of feedback at just over 0.8 statements made every minute.

Figure 2. Number of teacher statements made. (Rate per minute of observation.)



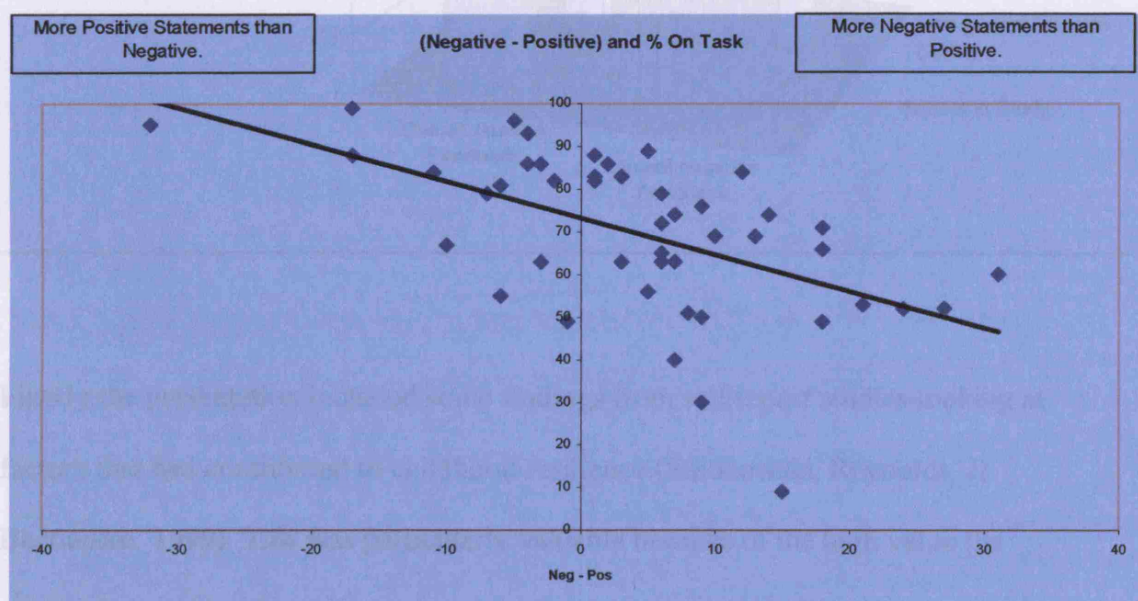
Secondly the argument for change was supported by comparison with other data.

With the aim of making a persuasive argument for changing teacher behaviour the data was used in two additional analyses: Firstly a figure was calculated for each lesson by subtracting the overall number of positive statements a teacher made from the overall number of negative statements he/she made. This gave a ratio of between -40 (much more positive than negative overall) to +40 (much more negative than positive). By comparing this with % on task figure 3 was generated. As can be seen from the trend line positive feedback was associated with on task behaviour.

Figure 4. Comparison of overall teacher feedback (Negative and positive) with data from Harrop and Swinson (2000)

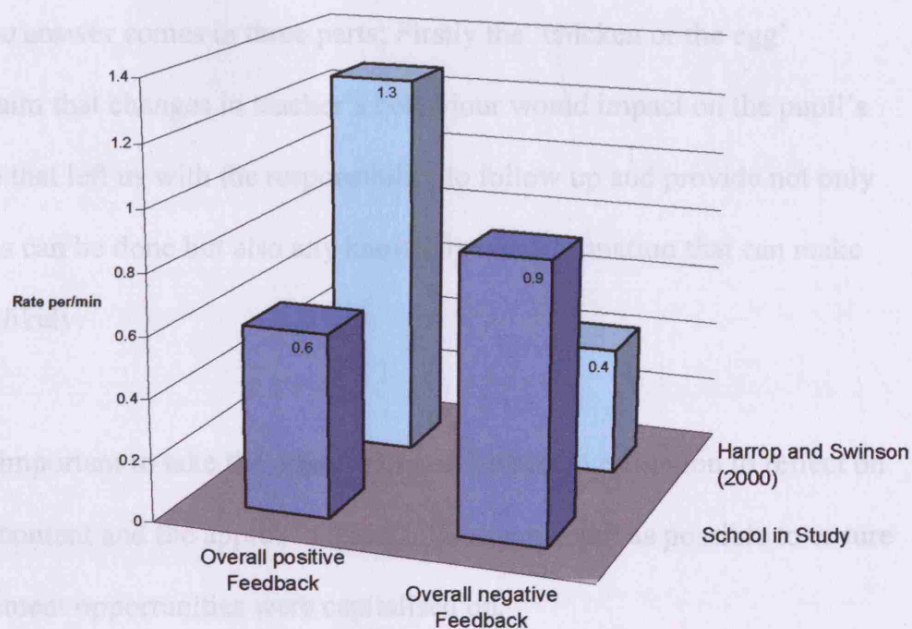
One key point made during the presentation was that nearly half the lessons observed have higher than 50%-60% on task but are nevertheless on the right hand side of figure 3 with an overall negative tone. It was hoped that by highlighting this the task of raising the rate of positive feedback to pupils would seem more achievable.

Figure 3. Balance of feedback (negative - positive) compared to percentage time on task.



Secondly the argument for change was supported by comparison with other data. Harrop and Swinson (2000), in their sample of 10 secondary schools, found rates of 1.3 and 0.4 of overall number of statements per minute for approvals and disapprovals respectively. This overall weighting for positive feedback makes a dramatic comparison against the school in the study, where the pattern is reversed. (See figure 4.)

Figure 4. Comparison of overall teacher feedback (Negative and positive) with data from Harrop and Swinson (2000)



Finally the presentation included some findings from self report studies looking at factors that had contributed to childhood resilience. (Smokowski, Reynolds, & Bezruczko, 1999). This was particularly valuable because of the high value the

interviewees in such studies place in the positive relationships they recall having with teachers. One slide included the following points:

- Researchers find that outside of the immediate family circle teachers were the most frequently cited positive role models in the lives of children.
- Smokowski, Reynolds and Bezruczko. (1999) looked at autobiographical accounts of children who had succeeded against the odds and found that
- “Teachers frequently provided critical motivational and informational support. Salient ingredients in the teacher-student relationship were believing that the child could do high quality work and repeating and consistently voicing this belief”

With this background in mind then why was it important to review the literature in more detail ? The answer comes in three parts; Firstly the ‘chicken or the egg’ question. Our claim that changes in teacher’s behaviour would impact on the pupil’s behaviour is one that left us with the responsibility to follow up and provide not only evidence that this can be done but also any knowledge or information that can make the effects more likely.

Secondly it was important to take the opportunity of further investigation to reflect on the presentation content and the approach taken in as much detail as possible to ensure that any improvement opportunities were capitalised on.

Thirdly the presentation was only the first stage of ongoing groupwork with staff that is still being rolled out in school currently, so further investigation into the use of positive reinforcement would support these ongoing discussions with staff.

A review of the psychological literature.

This review is in two sections. The first will look at some of the root ideas and principles within the behaviourist paradigm and consider some criticism of behavioural approaches. This section will conclude with an exploration of recent developments in behavioural theory.

The second section will look at research that has investigated the effectiveness of behaviourist interventions, looking at positive reinforcement and praise in particular. It will conclude by looking at the issues around using praise in the classroom.

Section 1.

Root ideas and principles.

Recall the quote from Flora, presented as illustrative introduction to this paper, stating that positive reinforcement is crucial to children's development. Flora makes this statement from a position deeply embedded in the behavioural paradigm;

"The most valid approach for overcoming behavior deficiencies and excesses is to conduct an analysis of the individual behavior-environment interactions and then to implement an intervention based on that analysis and on the systematic application of general principles of behavior including reinforcement of appropriate operant responses" (Flora, 2004)

This summarises, somewhat opaquely, the behavioural intervention method familiar to all psychologists. But what are the principles that are referred to?

They are described in detail by Wheldall and Merrett. (see Wheldall & Merrett, 1984 for example). Their Antecedent, Behaviour, Consequences (A.B.C.) approach uses behavioural analysis and principles of behaviour modification interpreted for use by teachers in the classroom.

According to Wheldall and Merrett the five principles of the behavioural teaching approach are; that those using the approach are concerned with the observable, that for practical purposes behaviour is assumed to be learned behaviour rather than inherited, that learning involves changes in behaviour, that changes in behaviour depend mainly on it's consequences and that behaviour is influenced and judged within it's context.

It is helpful to recall some of the earliest roots of the behaviourist paradigm at this point. Thorndike's two laws, The Law of Exercise and the Law of effect, are the two starting points in the identification of the central tenets of the Positive Behaviour Management. The Law of Exercise states that the more often a given situation is followed by a particular response, the stronger will be the associative bond between them. The Law of Effect states that if a response produces a good effect and leads to a **satisfying state of affairs**, it will tend to be repeated when the situation arises again. The Law of Effect is one of the earliest roots for the 'positive' principle in positive behaviour management.(Santrock, 2004) pp 215.

So should there be any behavioural approach to classroom management that is not positive ? Cooper Smith and Upton (1994) argue that there should not, and that furthermore it should be evident that both teacher and pupils find the application of the principles rewarding;

“Evaluation should show that the investment of time and energy in behavioural engineering is producing a good return in academic achievement and social competence, but there should also be significant if less tangible improvement in the classroom climate. In other words, the implementation of a behavioural approach should have evident rewards and positive reinforcement for the instigator as well as the recipients of the programme. If this is not happening,then either there is a breakdown between behavioural principles and practice or behavioural theory has not been correctly applied.” p84

Criticism of behavioural approaches.

Criticism 1: Motivation.

Behavioural interventions have been criticised for relying on external rather than internal sources of motivation. One example is an article by Robinson and Maines (1994) attempting to critique the Assertive Discipline programme of Canter and Canter (1992). The claim is that by relying on extrinsic rewards behaviour change is limited to the short term and meaningless in terms of the person's intrinsic motivation for respecting other people or becoming an effective learner.

The ‘neglect of intrinsic motivators’ argument however rests on the assumption that the distinction between intrinsic and extrinsic motivation is valid, but this assumption

has been questioned. (Glasser, 1988) argues from a theoretical point of view that there is no extrinsic motivation and that all motivation is ultimately internally driven.

A review of studies in the area by Ryan and Deci (2000) considers descriptions of intrinsic and extrinsic motivations in more detail. Different subtypes of external motivations are defined; those that are based on an external locus of control such as rewards and punishments, and those with an internal locus of control, such as changing behaviour to fit with a set of external values and expectations. A child being given a sticker might communicate such values and expectations very effectively.

Other writers looking at extrinsic and intrinsic motivation have argued for a 'reconciliation'. Covington (2000) writes that extrinsic and intrinsic motivations both have a role and that building on children's interests can provide a valuable way to motivate children in schools while acknowledging that extrinsic factors, grades for example, need not interfere with the development of intrinsic motivators.

Positive reinforcement, perhaps most often seen in the form of verbal feedback or praise, raises particular issues in this area. Does giving praise for grades limit a pupil's intrinsic motivation or will it encourage an internal locus of control by tapping into the child's desire to be part of the learning community of the school ? Fortunately recent research allows us to be far more sophisticated in the way we conceptualist praise.

The work of Dweck (2000) has helped explain some of the counterintuitive effects that praise can have on motivation. The notion of children who have an 'entity' theory of personality for example where traits are fixed and permanent (as opposed to those who have an 'incremental' theory) has helped explain why some children's reaction to praise is a lowering of effort. Furthermore this work has shown that certain types of praise, those that encourage an entity theory, will reduce motivation to change and develop.

In a recent review Henderlong & Lepper (2002) conclude that praise will enhance intrinsic motivation so long as it is sincere and so long as it "promotes autonomy, enhances competence without an over reliance on social comparisons and conveys attainable standards and exceptions." (p774) They comment that praise used poorly can be of limited use and even be harmful.

Practitioners should carefully consider arguments that criticise behavioural interventions because of their reliance on extrinsic motivators as they may be limited by too simplistic an analysis of motivational theory.

Criticism 2: The wider social context.

Maras & Kutnick, (1999), in a different criticism of behavioural approaches highlight three points of concern; that behavioural approaches (and cognitive behavioural approaches) focus on inappropriate behaviour, that they assume that appropriate behaviour can be taught without considering their relations to others in the social context and finally that they ignore emotions. These criticisms present a caricature of

behavioural approaches that is negative, narrow and incomplete. All three arguments have significant weaknesses: To take the first it is clear that inherent in behavioural approaches is an explicit focus on the desired behaviour not the behaviours that are inappropriate, as seen in the extensive meta-analysis completed by Cameron and Pierce (1994) for example.

Considering the second criticism the thrust of a behavioural approach is the reinforcement the individual (or group) gets from their relationship and interactions with others. The notion that analysis of reinforcement patterns is different to analysis of the interpersonal relationship between the reinforced and the reinforcer is a fundamental misconception about behavioural approaches. It is fair to say that it focuses on a small, key, element of those relations, but at the heart of the approach in classrooms is a systematic analysis of the social interactions between at least two people.

The final criticism, that a behavioural approach ignores emotions, returns us in part to the discussions around motivation. Emotions are at the heart of positive behaviour management and feature in the rationale for approaches such as (Canter et al., 1992) who's rationale for an assertive teaching style is based on the emotional responses of students: A nonassertive style leads to students feeling frustration and anger, while a hostile approach leads to fear and anxiety. However there is not a reliance on emotions as motivators for behaviour change. They are acknowledged as part of the picture and have always been, recall Thorndike's Law of effect that relies on *satisfaction* for the reinforcement to strengthened.

Motivation theorists (Covington, 1998) argue that emotions “which besides being so intense are also vague and often diffuse” (p58) can not provide an adequate model for motivation alone. This view may be unfair considering the complexity of contemporary affective processing models (e.g. Forgas, 2000) where emotion is integrated with cognition in modular systems. Forgas writes that “Our view of affect has undergone a fundamental shift in the past 20 years. Rather than viewing affect as a source of disruptive influence on proper – that is, affect-less – thinking, there is now a growing consensus that affective responses are a useful and even essential means of dealing with the social environment.” In addition note that this reported shift parallels contemporary behaviourist models that utilise very similar modular systems and information processing features (Billington & DiTommaso, 2003).

Maras and Kutnick raise a fourth concern that ‘Operant models refer solely to specific outcome behaviours with no reference to underlying abilities’. They cite only the work of Ogilvy (1994) to support this assertion. Ogilvy’s paper reviews social skills training programmes and concludes that teaching skills out of social context is likely to be flawed and that “a restructuring of the child’s social environment may also be required”. This finding concurs with behavioural approaches, which should by their very nature be focusing on the reinforcers in the child’s social environment and how they can be changed to encourage a behaviour.

So what is there in Ogilvy’s paper that could be seen as supporting the view stated by Maras and Kutnick ? When looking at social skills training programmes Ogilvy notes “three main elements: cognitive, behavioural and environmental”, and later notes that contingency management - using reinforcers to shape behaviour - can not alone teach

new skills. However this comment is made in the context of programmes aimed at *teaching new behaviours* rather than day to day classroom management and should be read in this context rather than as a comment on operant models *per se*. Teaching the desired behaviour is crucial, but in a secondary phase classroom context teaching social behaviour is – for most of the time at least – likely limited to modelling and reinforcing those who show the behaviour.

Criticism 3: simplistic interpretations and poor definitions.

Other criticism has focused on the dangers of using simplistic behavioural interventions without taking into account the context of those behaviours and without a good understanding of the theory behind the techniques (Berger, 1982). Examples of misunderstandings are not limited to interventions in schools: Cameron and Pierce (1994) completed an extensive meta-analysis of studies looking at reinforcement and intrinsic motivation. They highlight that many studies have confused reinforcement (“an event that increases the frequency of the behavior it follows”) and reward (which “is not defined by its effect on behavior”). Miller (2003) identifies other areas where the behavioural approach has faltered, including an overreliance on consequences and the limitations of focusing on ‘on task’ behaviour without considering what students do with that time.

These points identify the potential pitfalls in conducting research and planning interventions and demand greater rigor. At a theoretical level however they can not be taken as criticism of the approach itself, but rather as poor implementation of the

ideas. This is not so suggest that all failures of the approach are simply passed over as people not doing it 'properly': it is important to address failings in any paradigm, but it is equally important not to throw the proverbial baby out with the bathwater.

New developments ?

Malone (2003) introduces modern behaviourism as having developed from the previous 'molecular and absolutist' approaches of the last 50 years to become 'relativistic and modular'. An example of this change being the work of Billington and DiTommaso (2003) which details recent refinements to Herrnstein's matching law. The refinements allow for differences in individual sensitivity to reinforcement and sources of reinforcement outside of the experimenter's control to be accounted for in predictions in behaviour choices. The authors claim these changes make the match between rates of reinforcement and chosen behaviours predicable in complex environments giving models that vary relative to individual differences and environmental context. Malone notes that this effectively amends the *law of effect* to make the relationships between behaviour choice and reinforcement rates a more complex function that varies relative to factors such as the quality, immediacy, and rate of reinforcement as well as the effort required to attain particular reinforcers.

A critique of Billington and DiTommaso can be made at least three levels;

At an empirical level the work suffers as Billington and DiTommaso cite only one study giving any evidence of the efficacy of the new model, this being a within participant study using an extremely limited choice of tasks under experimental

conditions. The authors spend far more time developing the theoretical arguments around the model.

At a theoretical level the study appears to trace a complex progression through several versions of matching law equations. However analysis of the final 'generalised matching law' equation reveals that it contains two new components, firstly a value representing the bias between two competing reinforcers and secondly a value representing the individual's sensitivity to reinforcement. Although theoretically this provides greater real-world application subsequent examples of the equation in empirical studies that authors cite mention that researchers have not been able to identify bias or sensitivity directly, making this theoretical step interesting but somewhat questionable in terms of validity.

Finally at a practical level the work has some further weaknesses: It's concluding comments include the statement that 'researchers investigating the matching law have used single subject designs to control for threats to internal validity and enhance our understanding of behaviour processes....The challenge to educators is to apply these findings within the classroom context.' Given that the authors set out to describe an application of their ideas in education, and also call for closer interaction between experimental and applied work, this challenge is more than a little disappointing leaving as it does such an enormous gap between the remit of the study and the implied practical use.

Despite these limitations the work on the matching law does provide some interesting hypotheses about the impact of positive reinforcement on behaviour choices in

classrooms. Firstly that the immediacy of individual reinforcement will be critical to determining behaviour choices, the authors point to developments in information technology to provide individual reinforcement schedules tailored to specific individual sensitivity for example. Secondly that elements of a task need to be considered within reinforcement schedules and that more specifically by using a high number of short tasks the reinforcement effect of completing a task can be utilised. And thirdly that the quality of reinforcers can be enhanced by getting pupils to select their own 'idiosyncratic high quality reinforcers' or by teachers randomly selecting different reinforcers. Nevertheless, overall the ideas illustrate some of the pitfalls that behaviourist approaches face and confirm Miller's view noted in the introduction that the paradigm provides a 'vastly incomplete framework' for providing all the answers to behaviour difficulties in schools.

Section 2.

Behaviourist ideas in use today: How are they used and do they work ?

In the complex environment of school communities 'measuring' effectiveness becomes a challenging business. What conclusions can be drawn about the effectiveness of interventions ? Effect sizes have been used widely in meta-analyses since the 1970s and these large scale efficacy investigations (e.g. (Lipsey & Wilson, 1993) have afforded "a more refined and probing assessment of treatment effects".

A review of studies of behavioural interventions in Primary Schools between 1999 and 2002 was conducted by the Evidence for Policy and Practice Information (EPPI) Centre (Harden, Thomas, Evans, Scanlon, & Sinclair, 2004). The review set high standards for inclusion in the analysis, including the use of effect size. Only 9 studies in the United Kingdom met the criteria. They concluded that ‘There was no recent evidence of the effectiveness of strategies based on a behavioural model [in the United Kingdom]’ p50.

Other reviews have looked beyond these three years. Durlak (1995) reviewed mental health prevention studies in the United States and considered the effect sizes reported in different studies. Although a large number of the studies were mixed or unclear in terms of a ‘diversity in techniques, objectives and procedures’ Durlak makes a strong statement that;

“Analysis indicated that the use of behavioural or nonbehavioural change strategies was more important than any other variable in affecting outcomes. Programs using the former techniques obtained effects twice as large as those using the latter (ESs of 0.50 versus 0.26).”

Another recent review (Weare & Gray, 2003) considered approaches to developing behaviour through social and emotional skill development. This wide ranging review draws some positive conclusions but is not systematic in the manner of the review.

Early on in the text the authors set themselves apart from a behavioural approach saying that “Behavioural approaches alone are inadequate. Research has shown that approaches which focus on attitudes, values, feelings and motives as well as behaviour area are generally more effective than those which focus on behaviour

alone” (p23). The single piece of research cited to support this statement is a study by Morgan in 1983.

Morgan’s study of two classroom intervention styles suffers from many weaknesses which are acknowledged by Morgan herself “making it difficult to know for sure whether the differences observed between the two groups could actually be attributed to the type of classroom instruction received or ... to some unknown factor.” (p77) (Morgan, 1983) In addition there are weaknesses that Morgan does not acknowledge in the paper itself, such as no checks that the approaches described in the paper were actually what was occurring in the classrooms. In addition to methodological weaknesses the paper can also be criticised for a poor interpretation of a ‘behavioural’ intervention. Morgan simply describes pupils being given tokens for ‘good’ behaviour and a system of ‘punishments’ without any of the necessary consideration of what ‘good’ is defined as, how this is communicated to the pupils in terms of feedback and how ‘punishments’ are used. Morgan’s paper presents at best a naive interpretation of a behavioural intervention and, perhaps more truthfully, a fundamental misunderstanding of behavioural principles. Together with the methodological shortcomings it can not possibly be given the status Weare and Gray afford it in their discounting of behavioural approaches.

Teacher effectiveness and empowerment.

In addition to studies looking at behavioural interventions there is now a long history of work showing that changes in teacher behaviours will impact on pupil behaviour. These studies can be tracked back to early studies showing the effect of systematic

changes in teacher behaviour (eg: Thomas, Becker, & Armstrong, 1968) and have developed to look at issues for specific contexts, such as secondary schools (McNamara, 1987) and special provision for emotional and behavioural difficulties (Sutherland, Wehby, & Copeland, 2000). Such developments have been reviewed in detail by elsewhere (Miller, 2003, 1996).

Examples continue to be published in relatively unexplored areas of application such as applications with pre-school classes (Filcheck, McNeil, & Bernard, 2004). Here an intervention consisting of a whole class token reward system coupled with teacher and parent training in specific behaviour that promoted praise, reflection of positive behaviour, imitation, description and enthusiasm showed improvements in children's inappropriate behaviour. An ABACC' design introduced different elements of the intervention at different stages (baseline, token system, withdrawal, child directed activity (parent and teacher training) and parent directed activity). Coding of video 59 daily recordings gave data for the different implementation phases. Inappropriate behaviours fell from a baseline rate of 0.45 per minute to 0.29 with a token system and eventually to 0.06 following adult training. Teacher praise statements followed a corresponding pattern of increases from 0.07 statements per minute to 0.47 per minute.

Swinson and Cording (2002) look at the use of Assertive Discipline in a school for children with emotional and behavioural difficulties and find that training teachers in behavioural techniques improved pupils on task behaviour. According to Swinson and Cording the intervention has three main components; making requirements clear, giving continuous positive feedback and having a clear hierarchy of sanctions that are

clearly visible and consistently applied. Somewhat ironically this is similar to the ‘appropriate environment’ described by Weare and Gray where “firm structures and boundaries” and “clear rules” are seen as crucial partners to positive expectations and positive staff-pupil relationships.

Returning to praise: quantity and quality.

Verbal reinforcement is possibly the most fundamental tool available to teachers and arguably the most powerful and meaningful for pupils. Cameron and Pierce (1994) found that verbal praise has a greater impact in terms of effect size for increases in motivation than either tangible rewards or a nonrewarded control group. The amount of positive praise statements is highlighted by some researchers as being possibly the key to the effectiveness of behavioural interventions. A study of the efficacy of parent training programmes vs child training programmes vs combined parent and child training vs control by (Webster-Stratton C & Hammond, 1997) highlights the importance of parent training, without which the efficacy of the intervention is greatly reduced. The significant change in parent behaviours is said to be the change in emotional tone seen chiefly by an increase in praise statements.

When giving teachers advice on the use of praise Webster-Stratton (1999) writes that “In general teachers should make sure they have at least four positives for every criticism or corrective statement they make to a child.”p77. Do such findings apply with older children ?

Burnett (2002) found that teacher feedback has differential effects at different ages: between 9 and 11 pupils appear more sensitive to the levels of praise. Burnett's findings also show that general praise statements are not linked to perceptions of the classroom environment or the quality of teacher-pupil relationships, although feedback around effort and negative feedback was. Burnett's findings are based on self report questionnaires and the subsequent strengths of factor links between elements of those questionnaires. Without comparison with actual rates of feedback this study may be saying more about pupil's perceptions of types of praise than about the emotional tone of the classrooms overall.

Elwell and Tiberio (1994) explore American pupil's perceptions of teacher praise. Using questionnaire responses from 620 secondary school pupils they drew a number of conclusions about the nature of effective praise: the majority of pupils preferred positive comparisons with previous pieces of work rather than with peers; academic performance was seen as more deserving of praise than social behaviour, older pupils preferred quiet praise rather than 'loud' praise although overall 89% of pupils preferred loud forms of praise. An important conclusion they highlight is that the results contradict earlier thinking that overt praise for secondary aged pupil's can be counterproductive.

A pertinent question asked by Ewell and Tiberio was whether pupils thought praising an individual in front of the class for a correct answer was given to a) make the person answering feel good or b) make everyone know they should remember what the right answer was. 65% of older pupils (grades 11 and 12) thought that a) was likely to be the teacher's intention, while overall 59% of pupils thought that the b) was most

likely. It is possible to speculate that these older pupils have a more sophisticated understanding of the effects of positive reinforcement and hence begin to see it as less relevant for helping the learning of the majority of the group when given to an individual. A possibility supported by their preference for 'quiet' or personal praise.

Crespo (2002) describes the experiences and reflections of trainee teachers when thinking about their use of praise. For the trainees teaching meant becoming 'teacherly' in the way they spoke to children, summarised by Crespo as 'correct answers were praised and incorrect ones were corrected'. This donning of the professional mantle, Crespo argues, means that when it comes to praise 'teachers are not fully aware of its hidden messages and proper usage'. Crespo suggests that trainee teachers should be helped to show interest in how a child got to the right answer, exploring the success further by finding what the pupil did well and where they could apply that next as well as thinking about times when praise was difficult to use, such as when a child has given an incorrect answer and praise must be given for effort.

How positive reinforcement, in the form of praise, should be used in classrooms is a complex issue. The critical aspect of praise, as noted in the preceding section in the context of motivation, is the nature of that praise. This must be considered carefully by the teacher. If it is to be effective it needs to be both commonplace and, more challengingly, delivered in a sophisticated way.

Conclusions from the literature.

Research suggests that despite the limitations of behavioural approaches in providing all encompassing solutions to behaviour difficulties in schools the effectiveness of interventions based on positive reinforcement is often impressive. In this review several areas of continued discussion and controversy have been explored and the difficulties in applying the ideas successfully have been highlighted, the conclusion being that although powerful, the use of positive reinforcement in classrooms is a subtle and skilful art. Furthermore it is suggested that while praise and positive reinforcement are features of many intervention types, it has often been through the improvement and refinement the behavioural paradigm that we have gained a more sophisticated understanding of positive reinforcement in classrooms.

Integration of theory, research and practice.

Returning to the project described at the beginning of this paper, the literature reviewed suggests a number of useful developments. For example a key aspect of the work in the school has been to enable staff to have discussions with colleagues about behaviour. This collegial discussion can be vital to culture change in schools (Dalin, 1993) but was noted by many staff as impossible because of feelings that discussions about behaviour would simply be 'moaning' sessions. Therefore a key element in beginning this change was the initial presentation to staff described in the earlier .

Information processing theory on attitude change (Bohner & Wanke, 2002) identifies **mood, source credibility, argument quality and the emotional responses** evoked by the argument as all influencing the depth of processing and therefore the quality of any subsequent attitude or behaviour change.

In terms of **credibility** data gathered directly from observations in school helped enhance the argument. What was then key, turning to the literature review, was the assertion that by making quite a small change across the school (ie: increasing the level of positive feedback) pupil's behaviour could be influenced. Although not sufficient to solve the many complex problems the staff faced on it's own this first step had to be seen as a likely way to achieve high dividends. A solid empirical foundation had to be established, even if not directly communicated to the staff the psychologists themselves had to believe what they were saying !

In terms of **emotional response** the approach taken with staff in the study school presented a negative view of teacher behaviours. The arguments always ran the risk of being discounted quickly if emotional responses stayed with the negative aspects of the data. Further ‘elaboration’ beyond the initial data was encouraged by presenting the challenge as an achievable one, for example pointing out that many teachers were negative overall while rates of on task behaviour were quite high in some classes. By focusing on these on task pupils the rates of positive feedback could be increased dramatically.

In terms of **argument quality** a key weakness in the argument presented to staff was the large gap between what Bhoner and Wanke term the ‘sufficiency threshold’ (defined as the level of confidence a person would like to have) and ‘actual confidence’. In short teachers might have understood the need to be more positive in the classrooms but may not have seen any way of achieving it. One comment a member of staff made was that giving positive feedback was hard to do well, and that the best way to learn was to practise in class. Although good to hear that she thought it worth persevering with raising the rate of approvals this comment also emphasises the view that this skill could not be learnt effectively during a whole staff training session. A theme confirmed by the review of the literature.

Another aspect is finding ways to increase elaboration around the arguments to help make subsequent behaviour change more likely. Bhoner and Wanke argue that large sufficiency threshold-actual confidence gaps require more *systematic* processing. Systematic processing is defined as requiring high effort, being comprehensive and analytical in nature.

Looking for opportunities to build in more systematic processing an improvement might have been to include more specific examples of positive reinforcers, together with more guidance on how they could be used most effectively. More information does not suggest better processing however and thinking of ways to put ideas into their own words may have been a helpful additional step. In this way systematic elaboration might have been encouraged.

The ongoing groupwork in school provides opportunities for staff to do this in a safe supportive environment. Many of the points raised in the literature review came into such discussions. One example is the ratio of positive to negative statements. Recent government guidance (Department for Education and Skills, 2004) asserts that in secondary schools “staff should aim for a proportion of intervention equivalent to five types of reinforcement used for every corrective one”. Why the ratio should be 5:1 is not clear, and there is no evidence cited to justify it. A positive tone to interpersonal events has been linked to positive outcomes (in term of later depression and anxiety levels) for young people (Shahar & Priel, 2002) and as noted above in terms of later resilience (Smokowski et al., 1999) but this does not explain why 5:1 should be significant. It sets a high expectation when you consider that natural rates of approvals to disapprovals in schools are more like 2:1 in favour of approvals (Harrop et al., 2000; Wheldall, Houghton, & Merrett, 1989). The practicalities of implementing such a ratio brings in points about personal teaching style and being able to spot that number of behaviours to reinforce sincerely and contingently. This is no easy task and one discussed by the groups of staff with some interest.

The work of Billington and DiTomasso, discussed in the literature review, identified immediacy, individual sensitivity, self selection of reinforcers and providing shortened tasks with many opportunities for feedback as important factors. Other ideas reviewed are also relevant. The findings of Elwell and Tiberio are valuable in considering how pupils might respond to different types of praise and what strategies might be open to teachers such as being confident in using overt praise with secondary aged pupils but using it in a sophisticated way, praising improvements in personal attainment rather than comparisons with peers and considering whether praise will be perceived by the pupils as an attempt to reinforce a learning point or to make someone feel good. It is interesting to compare this with the view expressed by some teachers at the school in the study that older students simply did not like praise because of peer pressure to not be seen to do well in school, and that ultimately most positive reinforcement would be discounted by the pupils because of this.

Again further information will only produce behaviour change when processed in an effortful way. Role play and visualisation are both strategies for encouraging effortful processing in a 'safe' way. Unfortunately these strategies can be met with some scepticism by large audiences. There are systems where teachers implement ideas in class, reflect on their own practice and see the changes in behaviour in action. An example of this in action is given by Billington and DiTommaso. They describe a study where microphones and earpieces are used to give the teacher 'live' feedback in a lesson. Such 'real time' processing and reflection afterwards might help ensure systematic processing of the ideas.

Concluding comments.

The first theme that has been explored here is that criticism of behaviourist interventions and theory should be considered carefully by practitioners as the criticism is not always valid or held up by research. This has been the case in a number of examples discussed in the review.

The second theme has been that, in spite of the limitations that must be acknowledged, behaviourist ideas still have direct relevance to classroom practice and have the power to make a difference. It has been shown that behavioural approaches are robust and effective when implemented well and that although they are certainly no panacea for the complex psychological problems faced in schools they can be relied upon to deliver strong evidence based practice. Furthermore it has often been through the refinement of behaviourist principles that research has developed our understanding of the effects of positive reinforcement and praise in classrooms.

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Positive Behaviour Management.

Consistently uses positive behaviour management techniques as a central keystone of own personal classroom management style and during daily interactions with pupils around school.

*These behaviours have been allocated to Levels according to the overall rank score of that statement when sorted into levels by staff at *****.*

LEVELS	BEHAVIOURS
Uses positive behaviour management effectively.	<p><i>Positive recognition</i> - Sincere and meaningful attention given to a pupil for behaving according to your expectations.</p> <p><i>Praise</i> - Using proximity praise (praising a pupil nearby to someone misbehaving to alert them to the desired behaviour).</p> <p><i>Using Choices</i> - Giving the pupil options of two or more appropriate alternatives rather than directing.</p> <p><i>Positive Focus</i> – Explain what pupils should be doing rather than what they should stop doing.</p> <p><i>What you say</i> – Grading the language you use to make directions; ‘I’d like you to’ ‘I need you to’.</p> <p><i>Moving around</i> - As you teach, circulate throughout the classroom and keep giving praise.</p>
Displays personal commitment to developing and sustaining positive behaviour management in the classroom and around the school.	<p><i>Praise</i> - Consistently reinforce pupils who follow the classroom rules.</p> <p><i>Regular scanning</i> - Make a point of looking out for the pupil who is keeping to the rules.</p> <p><i>Using Choices</i> – ‘If you choose to break the rule you understand what will happen.’</p> <p><i>Past successes.</i> - Remember how well you....last week.</p> <p><i>Managing confrontation</i> – Use specific strategies used to manage confrontations.</p>
Goes the extra mile in recognising and reinforcing positive behaviour around school.	<p><i>Praise</i> – Using positive notes, letters home and phone calls.</p> <p><i>High risk times</i> - Pay particular attention to times such as when pupils are leaving or entering class and managing transitions between activities and have clear routines.</p> <p><i>Group dynamics</i> – Use praise and recognition to reinforce group behaviour pupil’s sense of belonging to the class group.</p> <p><i>Positive follow up</i> - As soon as a pupil is back on task, take the first opportunity to praise his/her appropriate behavior.</p>

Evaluating effective individual reading interventions.

Aims and scope of this paper.

“Too many pupils receive additional support or undertake intervention programmes that do not meet their needs well enough”. (Ofsted, 2005)

This finding from the Office for Standards in Education highlights the difficulties schools face in selecting appropriate intervention programmes and evaluating the progress that children make. This paper explores some of the issues making these tasks so problematic with three specific aims.

Firstly it considers the literature concerned with measuring progress and addresses from a conceptual point of view what progress in reading really is and how it can be measured.

Secondly it reviews empirical studies that purport to measure progress in reading. A key part of the discussion is a critical review of an attempt to synthesise research evidence on effective reading interventions by Brooks (2003).

Thirdly the paper applies these discussions to the practice of Educational Psychology: at both the level of advising schools on appropriate intervention programmes for individual pupils and secondly in helping schools make judgements about whether a programme meets a child's needs. In addition it considers some of the factors that schools identify as being significant in making interventions successful by looking at the outcomes of a project in a large county council education department that was designed to investigate what effective schools were doing to achieve their success.

The Practice Context.

The progress children make in school is a ‘hot’ political issue that can become the subject of intense scrutiny at times with attempts to justify or refute claims that standards of attainment are rising (Tymms, 2004; Statistics Commission, 2005; Massey, Green, Dexter, & Mamnett, 2002). Schools are under pressure not only to help children learn but demonstrate that progress has been made. Furthermore evaluating progress that children make in their learning compared to a) their individual needs and starting point and b) the amount of resource dedicated to their education is increasingly seen as an important function of schools. Schools are expected to ensure progress, measure progress and demonstrate value for money.

Progress, however, is defined in different ways in different places. The Special Educational Needs Code of Practice (DfES, 2001) for example identifies 7 ways in which “adequate progress” can be defined. It can be progress which;

1. Closes the attainment gap between the child and their peers.
2. Prevents the attainment gap from growing wider.
3. Is similar to that of peers starting from the same attainment baseline, but less than that of the majority of peers
4. Matches or betters the child’s previous rate of progress.
5. Ensures access to the full curriculum
6. Demonstrates a improvement in self-help, social or personal skills
7. Demonstrates improvements in the child’s behaviour.

The seven definitions seem to cover almost every possible conceivable event. Even those that you could not seriously consider a definition of 'progress'. For example under the fourth definition it might technically be possible to use the term 'adequate progress' if a child is actually regressing, so long as the rate of decline is the same as (or maybe less steep than) it had been previously!

More recently the DfES has published guidance that recommends that schools evaluate the intervention programmes they use to support individual pupils against a benchmark rate of two years progress in reading age for every chronological year taught. Where programmes are not delivering this schools are encouraged to "re-evaluate" the programmes being used and consider other alternatives (DfES, 2003). This challenging DfES definition of good progress is itself problematic: being phrased as "twice the normal rate of progress" it begs the questions; what is the *normal* rate and normal for whom?

The issue is pertinent for Educational Psychologists, not only because of day to day involvement in such issues in school but also in respect to the British Psychological Society's definition of Dyslexia. This includes the stipulation that **progress** is compared to the additional effort and instruction that has been required to achieve this progress (BPS working party, 1999). The working party also explains how progress might be measured "through methods such as single-subject experimental research and precision teaching". It adds that "These methods offer a set of strategies for carrying out focused assessments of pupil performance over time and for recording progress in a way that facilitates judgements about accuracy and fluency of performance."(p68)

The next two paragraphs briefly describe a strategy in a large education authority that set out to identify good practice in individual intervention programmes for supporting children's reading and spelling. (Note that numeracy was also included but will not be covered in this discussion.)

The first stage of this strategy was to identify Primary, Junior or Infant schools in the county that appeared to have good results at national key stage assessments for children with special educational needs, when compared to other schools around the county. The data used, known as *residual* figures, are compiled for each school in the county on an annual basis. This is done by first calculating the difference between national curriculum attainment scores (expressed as levels of attainment) children with identified special educational achieve at the end of consecutive key stages.

Dividing this difference score by the mean difference across the county then derives the residual. The final residual figure is a ratio falling either above or below zero. A score of +2 would, for example, indicate an increase in attainment through the national curriculum levels at the start and end of that key stage for that school that was double that of the mean increase for other schools in the county between those same two key stage assessments.

Using these figures a group of school advisors, specialist teachers, and an educational psychologist identified schools from each District of the county that achieved a residual score of 0.5 or more for national curriculum attainments in reading and writing for pupils with special educational needs. Figures were considered for both the change from key stage 1 to key stage 2 and from baseline figures to key stage 1.

The figure of 0.5 or more had to be sustained for two (or more) consecutive years meaning that these schools were demonstrating sustained impact.

In this way 27 schools were identified for the next phase of the strategy. This comprised semi-structured interviews with the school's headteacher and SENCO. The interview questions were designed to investigate the factors that might be contributing to the good practice suggested by the residual figures.

As the aim here is to consider effective intervention and issues around measuring progress the following lists only include the questions that relate specifically to assessment and the implementation of individual, or 'wave 3', interventions. The full interview is included as an appendix.

Assessment

What assessment tools are used to identify baselines against which progress is measured for the underachieving cohort?

How and why were these assessments tools chosen?

Who carries out the assessments and how?

Intervention

What Wave 3 interventions are delivered?

How were the interventions chosen?

Who delivers the interventions?

How are they delivered?

Are targets set for individual pupils ?

How often is progress measured against these targets?

How often are the interventions evaluated?

Has the intervention ever been changed as a result of review?

The aims of this phase of the investigation was to achieve a 'bottom up' audit of what effective schools were doing that might be contributing to the higher rates of progress children with SEN in their schools were making according to the key stage attainment scores. One of the possibilities that was being considered was that there may be other enabling factors that could be identified in this qualitative data that might be affecting the success over and above the specific type of interventions that were being used.

This section has introduced some of the practice context for this paper and has mentioned a number of issues for schools and psychologists relating specifically to the rates of progress that children make in reading. It has briefly introduced an investigation looking at possible enabling factors in schools where good rates of progress are found.

Considering an audit of schools' practice in this way without considering the literature in the field could mean missing perspectives that were not identified from the sample of 27 schools. The next section therefore considers in more detail the conceptual and methodological issues related to the measurement of progress and the assessment of intervention efficacy. In the final section we return to look at some of the outcomes of this investigation and review the practical issues for educators before seeing what conclusions might be drawn.

Psychological Theory and Research : Measuring progress, some problematical issues.

This literature review falls into three sections. The first looks at statistical and epistemological issues related to measuring progress and focuses on the use of reading age scores. The second and third both address measuring progress in practice, the second looking at how comparisons between different empirical studies have been attempted and the third reviewing a recent attempt at a meta-analysis in the field. To source the literature electronic databases (ERIC and PsychINFO) were searched using search terms such as 'reading tests', 'reading ages', 'effect size' combined with 'reading', together with author and citation searches of earlier references. It was also possible to hand search a number of journals dedicated to a) reading and b) epistemology and methodology in psychology.

Measuring a rate of progress: Some statistical issues.

This paper does not aspire to be an in depth review of statistical techniques and principles. Nevertheless any serious discussion of how to measure rates of progress must touch on some pertinent statistical and psychometric issues in measuring change. Among the many, often complex, objections to measuring change in any particular construct over time two key issues are that a) implicit assumptions about linear change are not often acknowledged (and perhaps not understood) by researchers, and b) standardised scores will show a regression to the mean effect when used in a pre-test and post-test manner.

Writers arguing against the use of difference scores and linear regression models of change (Cronbach & Furby, 1970, Krause, Howard, & Lutz, 1998) maintain that researchers should either ask different questions or make sure that data is analysed in a manner that specifically explores possible interactions and nonlinear effects. Full mathematical critiques of these positions have been undertaken (Mellenbergh & van den Brink, 1998) but others have argued in more accessible papers for applied practitioners that linear models can be used effectively so long as assumptions are made explicit (Clarke, 2004). Others argue that regression to the mean arguments are “fallacies” when considering non-standardised scores where the standard deviation is not being used as the unit of change (Gottman & Rushe, 1993).

With regard to reading research the dangers of an assumption of linear change are all too strong when simplistic models of change such as reading ages are used. At worst two reading test scores, one showing an increase from a previous one, can be assumed to show a rate of progress which could be sustained over time or replicated with other children. According to several writers an improvement on this would be to develop a polynomial analysis (moving to a curvilinear model rather than a liner model) where three or more tests are given over time. This has been variously termed an “individual growth trajectory” (Francis, Fletcher, Stuebing, Davidson, & Thompson, 1991) or a “multiwave study” (Mellenbergh et al., 1998) both requiring that at least three measurements are taken to ensure that simplistic linear assumptions are avoided.

This kind of improvement still rests on the assumption that increments between all three or more points lie on an interval scale. When looking at a complex skill such as reading this is not the case: the skills needed to move from a standard score of 70 to

one of 75 can not be assumed to be equal in terms of cognitive load, practice time required for fluency or in terms of the teaching methods required as those that would allow a child to move from 105 to 110. The growing understanding of the links between specific aspects of cognition and neurological processes in learning to read illustrates this by highlighting the fact that different regions of the brain are brought into play as children move from, for example, de-coding to more automatic word recognition (OECD, 2002). Some of these processes are effortful while others rely on repeated exposure. Such differing processes are clearly not comparable on the same linear scale.

Reading ages.

Reading ages are widely used in research to present participants' attainment, evaluate progress and to compare the progress made between different studies (e.g. Brooks, 2003). Reading ages are traditionally conceived of as the mean score that a person of a particular age might be expected to get based on normative data for a population of people who actually are that age (Vincent & Cresswell, 1976, Pumfrey, 1977).

However they have always come with a host of warnings including the fact that (as noted above) reading does not develop in a linear fashion and that the concept of reading age implies a degree of permanency in the nature of the child's learning that is not helpful (Vincent et al., 1976). This illusion of permanency, or perhaps more accurately a sense of inevitability, seems to stem from the notion that **time** is the key factor in the development of the skill rather than **teaching**. Pumfrey goes so far as to write that "If a teacher is concerned with inter-individual comparison of reading abilities, she would be well advised to abandon the use of reading ages." (p112)

Cronbach (1990) describes any age equivalent score that compares a child's current attainment on a test with that of another group of children (e.g. those who are two years younger) as "fallacious" because of the simple fact that you are comparing a child with an inappropriate normative sample. (p117)

Clay (1991) criticised reading age scores from two different perspectives, firstly because a reading age score tells a teacher nothing about what to teach or how to teach it, and secondly that reading age scores will invariably mean that reading intervention is not initiated until a child is two or more years behind in their reading age equivalent scores, by which time much more damage has been done than might otherwise be the case.

This catalogue of complaints would seem to be sufficient to make the scores redundant but this is certainly not the case and the arguments against the reading age still come. A recent examination of reading ages undertaken by Alexander and Martin (2004) concludes that "The use of reading age or age equivalents is conceptually and practically misleading and should not be provided in test norms." (p416) Their study found that reading ages misrepresented children's attainment depending on the season of their birth. They comment that if there is any basis for reading ages "this must be based on a hypothesis that reading...is substantially developmental" and that interventions have relatively little effect on the course of skill development. This they argue is patently not the case. In effect this study confirms a point made nearly 30 years earlier (Vincent et al., 1976) that the reading age score takes no account of the differing distributions around the mean score that is used to set the reading age. It begs the question why does their use persist to such a great extent?

Looking at the statistical discussions around measuring progress and the ongoing dissatisfaction with reading ages has served as an introduction to some of the issues in this area but we now come to another thorny problem, that of making comparisons between the progress seen in different research studies. This is an area where assumptions about the nature of change and the units of measurement used by different researchers become intricately tied to the quality of judgements that are made about research findings.

Measuring progress in reading and making comparisons in practice.

I : Contrasting approaches and making comparisons.

This section examines two contrasting examples of attempts to look at rate of progress in reading and then considers some strategies for making comparisons between studies.

Bonfiglio, Daly, Martens, Lin and Corsaut (2004) present perhaps the most simple (but not necessarily simplistic) method of measuring progress. In their comparison of skill based (SB = feedback on demonstration of the skill) and performance based (PB = feedback on motivational or effortful components of performance) interventions they used a single participant study to look at progress in reading over time while the different interventions were implemented. A mixed intervention (SB+PB) was also used. The assessment consisted of timed probes using a precision teaching model with 6 matched passages.

As can be seen from the results presented (see figure 1) progress at different points in the interventions was measured simply by recording the number of words that the participant was able to read from the passages used in the study.

Figure 1. Results of a single participant reading study. (Bonfiglio et al., 2004)

This approach has some merit. The authors argue it has strong validity for the interventions being considered. It also has clear similarities with the recommendations of the BPS working party definition on Dyslexia mentioned above that progress be

assessed by single study designs or precision teaching. The face validity of looking at reading in this way avoids the concerns some writers express that bringing in additional constructs (such as phonological awareness) can blur issues and add nothing to the explanation of what is happening (Thomas, 2002). A criticism of this paper however would be that although reducing measurement to the bare minimum (and it is quite fair perhaps to argue that Bonfiglio et al. go below the minimum by only looking at the words that are read!) has validity in terms of not requiring additional, possibly superfluous, constructs and variables, it fails completely to say anything meaningful about how the participant is actually reading the words and therefore what the quality or nature of the progress might have been.

Salinger (2002) argues that the face validity of assessments for reading can only be achieved by taking into account many different sources of information and that “No decisions should be made about students based on one piece of evidence” (p394). Salinger argues that standardised testing provides a very weak measure of reading performance and that reading assessment must have a wider focus. It should instead emphasise the “social nature” of reading. The outcome of assessment must be a wider more complete picture than change in any one variable so that “measurement precision accrues from placing each student accurately on a developmental continuum so that his or her trajectory in literacy learning can be better understood and directed” (p399). Assessment should, according to Salinger, include; concepts about print, alphabet knowledge, rhyme awareness, spelling, sight word reading, story retelling, a running record of reading rate and fluency, reading comprehension, writing assessments, on-demand tasks (for reading and writing), oral language skills and a survey of literacy experiences.

Comparisons between these two approaches are not sensible, beyond the illustrative point being made about the wide variation that exists in practice, as each is approaching a very different problem. However the differences between the two are seen to some degree in differing attempts to capture the quality of children's reading in research: some researchers use a narrow and specific conceptualisation of 'reading' while others seek to explore it in its fullest sense. These differences clearly make for considerable difficulties when comparisons are being made between different research studies in an attempt to decide which of a number of interventions might be more effective.

Brooks (2003) undertook a comparison of a number of different interventions in literacy. Two strategies are used by Brooks in an attempt to overcome these difficulties caused by varying approaches to measurement: ratio gains and effect sizes. These are described by Brooks as follows;

"a ratio gain is a group's average gain in reading or spelling age in months divided by the time between pre- and post-test in months. A ratio gain can only be calculated where the test provides reading or spelling ages;"

"an effect size is the experimental group's gain minus the control group's gain divided by the control group's standard deviation. An effect size can be calculated whether the scores are reading/spelling ages, standardised scores, or even raw scores An effect size can even be calculated in the absence of a control group, *provided that the test used yields standardised scores*. In these circumstances the standardisation sample is treated as an implicit control group and the standard deviation of the test is used." (p 6)

A ratio gain is simply a difference score and so long as it is not based on standardised scores this comparison does not suffer from the criticism (discussed above) of regression to the mean. However it does suffer from all other limitations that binomial data entails and the criticisms of reading age data. A different error made by Brooks is that various reading tests are used to calculate the ratio gains in different studies but analysed as though each were giving equivalent information. Indeed in some analyses reading age scores from different reading tests are summed from data from a number of different smaller studies all looking at the same interventions (see the analysis of studies looking at Paired Reading on page 100 for example).

The effect size calculation used by Brooks is more sophisticated, and a better index of the magnitude of change. However caution is needed here also. Huberty (2002) has argued that the increasing use of effect size in research methodology was a response to the poor use of statistical significance in reporting data, but that poor use of effect sizes may in turn lead to equally misleading conclusions. In essence Huberty argues that a large effect size may not necessarily be unexpected given any particular sample or population. Huberty recommends that researchers consider both p and effect size in order to evaluate the impact of any treatment (p236).

Effect size was used extensively by the National Reading Panel (2000). Their procedure was more rigorous and required three further analyses where; a) differences between mean weighted effect sizes are compared statistically to see to what extent the differences are statistically significant, b) analysis to see if moderator variables for each effect size give a similar result within levels of analysis and c) if different moderator variables give different results between levels of analysis. (p111).

Moderator variables that were included in the analysis included socio-economic status

and age of the readers. These conditions reflect the arguments made by Olejnik and Algina (2000) who describe a wide range of strategies for apportioning weighted “standardizers” to effect size calculations. These are needed in order to avoid errors related to implicit assumptions about the scale of measurement used to derive the mean scores on which the effect size calculation is based. Olejnik and Algina also give a number of warnings about the use of effect size calculations including the fact that they are not a substitute for good validity in terms of the measures that are used, that effect sizes are greatly affected by the nature of a research design and, perhaps most pertinent here, that a strong effect size indicates that more of the variance in the results is explained by the treatment, but that “the quantification of the strength of a treatment is generally unknown” (p281). In other words the effect size is specific to the variance seen in the results, not necessarily to the strength of the intervention *per se*. The variance seen in the results is in turn affected by many other factors, such as the heterogeneity of the sample population, the reliability of the assessment measures and the nature of the measurement scales being used.

Measuring progress in reading and making comparisons in practice.

II. What research exists, and is it any good ?

In addition to issues to do with how progress is measured there are methodological concerns about the quality of research that attempts to evaluate the effectiveness of teaching and interventions for literacy.

Benchmarks for good quality research are often set by writers who undertake meta-analytic studies as a way of screening studies for inclusion in a comparison of

different approaches. However authors who have set out to provide a comprehensive review of research in the field of reading (McGuinness, 2004; Adams, 1994) frequently bemoan the lack consistency and rigour. McGuinness, for example, notes how early attempts at meta-analysis were little more than the collected “opinions of authors and curriculum developers” (p80). Mapping out some of the progress that has been made over the years she also adds a note of caution noting that in modern times:

“We assume that in every scientific report the correct statistics were used on the appropriate data for the right reasons, and that the interpretation of the findings in the study is an accurate reflection of what really happened”. (p102)

She warns that the assumption of modern scientific rigour is a dangerous one.

Table 1 gives an overview of the four most recent meta studies in the field of literacy, two looking at intervention programmes, two looking at wider pedagogy and principles. The first is a review of phonological intervention studies undertaken by Troia (1999) with the aim of establishing benchmarks for quality of research in the field. The second is a large meta-analysis undertaken by the National Reading Panel (2000) to establish principles for teaching phonological skills in schools in America. The third is a review of studies into literacy interventions in the United Kingdom undertaken by Brooks (2003). This review will be the subject of further discussion as it has subsequently been used by the DfES to give schools specific advice on how to support children with literacy difficulties in schools (DfES, 2003). And finally the Evidence for Policy and Practice Information Centre (Hall & Harding, 2003) review of the nature of effective literacy teaching in classrooms is included.

Table 1. Overview of four meta-studies looking at the teaching of literacy and intervention effectiveness.

	Troia (1999)	National Reading Panel, Phonics Instruction. (2000)	Brooks (2003)	Hall & Harding. EPPI-Centre. (2003)
Aims and scope.	A critical review of phonological awareness intervention research.	A number of questions were asked of phonics instruction including; are some types more effective than others, and is systematic instruction more effective than nonsystematic.	What intervention schemes are used in the UK for literacy that have been quantitatively evaluated and how effective are they ?	To examine and appraise the evidence on the nature of effective literacy teaching.
Sources used.	A search of PsychLit and ERIC and hand searches of relevant journals. Refereed Journals only.	PsychINFO and ERIC search. Published in English in a referred journal,	Studies selected by author as being “studies that attempted to answer [the effectiveness] question”. No criteria. Include unpublished data and LEA reports.	ERIC, PsychINFO, BEI, handsearches of relevant journals, key internet sites.
Methodological criteria.	Experimental design. Use of control group.	Experimental, quasi experimental or multiple baseline method. Include reading as an outcome measure. Report effect sizes or permit calculation of effect size. Include full outcome measure descriptions, adequate participant descriptions, details of instruction with fidelity judgements possible.	Quantitative data is needed for effect size of ratio gain calculation. (Studies with a control group are asterisked in the report to highlight them.)	Paper provides an “full and detailed account of both methodology and findings”.
Nature of intervention considered.	Must include auditory synthesis or analysis in isolation or with phonics training.	Focus on reading development from preschool to grade 12.	Intervention schemes used “to boost reading spelling or overall writing attainment in lower attaining pupils in at	Ages 4-14. Effectiveness characteristics of literacy teachers.

			least one of Years 1-6" (p1)	
Other criteria	Length of intervention must not be "brief".	Published after 1970. Studies not included in the separate phonemic awareness NRP study.	UK only.	Selected for relevance and usefulness to the training of teachers.
Number before criteria applied.	68	75	25	80
Number after criteria applied.	39	38	25	12

A number of differences are worthy of note. Firstly it can be seen that with the exception of Brooks the authors have used similar sources for their literature searches with ERIC and PschINFO (formerly Psychlit) being seemingly the 'industry standard'. Secondly Brooks is the only study that does not require methodological criteria other than reporting quantitative data. Thirdly it can be seen that Brooks is the only study that does not apply selection criteria and 'weed out' studies that do not meet these criteria from the initial searches.

In view of the apparent weaknesses in Brooks' formulation a more detailed review of some of the studies seems warranted. Only studies that appear in referred journals have been selected for further analysis here. Of the 20 intervention approaches reviewed by Brooks only eight are supported by papers in refereed journals and of these there is only space to review 5 of these here. The 5 were selected to demonstrate the range of intervention types covered by Brooks. More specifically they include evaluations of focused phonological interventions, parent involvement, the use of information technology, comprehension and inference training and a broad pedagogical intervention looking at many aspects of literacy.

For each intervention the methodology used in the study is commented on, the statistical analysis used in the paper itself is reviewed as well as any further analysis completed by Brooks (2003) and finally the conclusions drawn by Brooks and the DfES (2003) on the basis of the evidence are considered.

The Catch up Project.

Methodology - Clipson-Boyles (2000) describes a pilot study evaluation of a “broad-based approach teaching a range of skills, strategies and concepts, including phonological knowledge (visual and aural) sight recognition of high frequency words, cueing strategies, and the links between reading and writing”. The control group are given matched time but with no teacher guidance or additional resources, and the reader is left to wonder what the teachers actually used the time for! Clipson-Boyles notes in conclusion that the limitations of this ‘initial’ study are great and that “It will be important to investigate what is influencing children’s progress”. There nothing to suggest the content of the intervention made the difference in outcomes. Was it simply that some teachers were given new resources and guidance and some others were not?

Statistical analysis - The effect size calculations made are referenced but *p* levels are not reported which considering the small sample size acknowledged by Brooks is a significant weakness.

Conclusions - In addition to this paper Brooks cites further unpublished data that has been gathered for the Catch Up Project but clearly this is not freely available for review. The DfES document on target setting lists Catch Up as one of the eighteen “successful interventions”, but on the basis of this evidence there is little justification for this.

Inference Training.

Methodology – The study cited by Brooks (Yuill & Oakhill, 1988) in the case of inference training has a clear methodology that attempted to answer a very specific question, whether training in making inferences would support reading comprehension in spite of differences in “constructive integration” or word reading fluency. The sample for the study are all children with good decoding skills (all groups several months in advance of their chronological age according to the reading ages reported) and comparisons were then made between groups of children who differed in their reading comprehension. Those who were either “less skilled” (who have comprehension age equivalents within two or three months of their chronological ages) or “skilled” (who had comprehension age equivalents a year or more in advance of their chronological age). This high level of decoding skill, coupled with the fact that the children are then trained in groups, means that firstly this is not a representative sample of children who might normally receive wave 3 support and that the delivery of the intervention is not individualised, also a key requirement of wave 3 support. In short it is difficult to see why the study is included in the Brooks analysis at all.

Statistical Analysis – The authors report *p* levels for all comparisons but do not include effect size analysis. Brooks does not attempt to calculate them from the data supplied but reports ratio gains.

Conclusions – Inference training is not highlighted by the DfES target setting document or Brooks as an intervention that is likely to produce significant reading gains.

Interactive Assessment and Teaching.

Methodology - Nicolson, Fawcett, Moss, Nicolson, and Reason, (1999) describe an evaluation of a training programme incorporating “computer assisted” learning for 61 young children identified as having weak reading skills. A control group was used but received no additional input at all. Interestingly this is one of very few studies where the authors make specific reference to the weaknesses of standardised assessment saying that “It is also important to note that the standardised measures used in these studies do not provide the richness of description available via curriculum based teaching [and assessment]”.(p60)

Statistical Analysis - The authors report *p* values for the main comparisons and go on to report effect sizes for the intervention group and the matched poor readers who received no additional support. The authors also compare the effect sizes to those they calculate from other studies looking at the Reading Recovery programme, although they note that making too much of such comparisons of effect size is “unwise”.

Conclusions – IAT is listed by the DfES as a successful reading intervention.

Parental Involvement.

Methodology - Hewison (1988) is a follow up to a longitudinal study with over three points of data collection over time. It is one of seven included in Brook’s review that take a long term perspective to evaluation of impact. Hewison’s paper reports a three year follow up of a two year intervention programme (Wolfendale, Topping, & Hewison, 1986) that achieved significant gains in reading achievement as a result of supporting parent involvement.

Statistics – Hewison reports standardised scores for published reading tests used in the follow up and the significance of analysis of variance and chi square comparisons for group by intervention analyses and for changes in reading performance are reported.

Conclusions – The study is not reported by the DfES as a successful intervention although Brooks lists it as having an effect size indicating an educationally significant impact.

Reading Intervention.

Methodology –. This was another longitudinal study (Hatcher, Hulme, & Ellis, 1994; Hatcher, 2000). It tracked four matched groups of 7 year old poor readers using structured interventions designed to answer a specific hypothesis: that phonological training and reading instruction would be more effective than an intervention involving either reading instruction alone or phonological training alone. Six different reading related measures are included and arithmetic was also included to compare progress in a non-intervention related area.

Statistics – The between groups comparison statistics are reported for comparisons between the progress different groups made on different tasks. Factor analysis results are reported in the discussion where the relative impact of different reading predictors are considered. Effect sizes are calculated by Brooks.

Conclusions – Reading Intervention is included in the DfES list of the successful interventions.

The studies briefly reviewed here are only a small selection of those included by Brooks but already it is apparent that the studies included in the review differ greatly

in terms of methodological rigour, quality of the statistical analysis, nature of the interventions and the overall aims of the studies. The eclectic range of intervention types in the Brooks study sets it apart from other meta-analytical studies that limit their analyses to specific intervention types (see table 1 above). Brooks includes a comparison of Ratio Gains calculated from different studies set against each other in the same table despite the fact that studies have looked at very different aspects of reading, from highly structured phonological interventions over several weeks to two year interventions aimed at increasing parental involvement.

In addition to methodological and statistical issues there are some emerging suggestions about the different factors that may contribute to the ‘success’ of an intervention programme or not. The research looking at the Catch up Project demonstrates neatly that effects can be seen without necessarily having a clear understanding of what is causing them. In this example it could be the time and effort put into the programme as much as the programme itself.

It can also be seen that ‘intervention’ can consist of a wide range of things, not all directly linked to pedagogy or the curriculum. Parent involvement, inference skills and the involvement of information technology are all significant features of the interventions reviewed here. It becomes apparent that affecting change in schools to increase the efficacy of interventions might include many other factors in addition to what is taught and how it is taught.

Integration of theory and Practice

The OFSTED finding that many children are not on appropriate intervention programmes noted in the introduction is a pertinent issue for psychologists at both the level of advising schools on appropriate intervention programmes for individual pupils and in helping schools make judgements about whether a programme meets a child's needs well enough.

The above discussion suggests that there is still a danger of making simplistic assumptions about the rate of progress a child is making through a complex skill like reading despite many years of warnings and criticism of, for example, the dangers of reading ages. There is a great need for all professionals to keep encouraging more meaningful assessments of reading and progress in reading to counter the view that a difference score between two reading ages is sufficient to make judgements about the quality of children's learning. Educational Psychologists are particularly well placed to do this.

Regarding decisions about individual rates of progress, the debates around the statistical aspects of measuring progress suggest that measurement should be made on at least three occasions. The added benefit of polynomial analysis would be a significant improvement to the British Psychological Society working party report on Dyslexia for example, which although mentioning precision teaching, does not make specific reference to the weaknesses of binomial evaluation.

In terms of offering advice about effective interventions it is important to consider the aims and scope of intervention studies as well as their outcomes in terms of effect size

before making comparisons between different types in terms of effectiveness. In addition all practitioners need to be aware of inadequate methodology and statistical analysis in studies that attempt to evaluate intervention programmes.

A wider range of enabling factors ?

For those advising school staff and making judgements and recommendations about effective interventions these clearly have to be based on a wide range of factors.

Bangerter (2002), for example, looked at differences in attainment and reported a great variation between schools in the way word level work was taught by teachers, highlighting that given any curriculum or programme there may be considerable variation in the way it is implemented.

Consider again the interviews described earlier in this assignment that were carried out with headteachers and SENCOs in the schools where there were high residual scores. Here again a range of things that impacted on the effectiveness of the interventions were identified:

One example was a headteacher who commented that the positive residual scores came in the two years after the school had been in the OFSTED Special Measures category. He noted that one of the most significant factors in the sustained improvement was the scrutiny of teaching and learning in school over this period of improvement and the large amount of additional support and advice that came into the school as a result of the OFSTED findings. This was perhaps one of the more extreme examples but other, more common, factors included the positive community ethos of a school where headteachers felt they had been able to develop particularly effective

relationships with parents of children with additional needs and the perceived quality of Teaching Assistant support.

The group analysing the data reported that “During the school based meetings, several issues were frequently raised as being instrumental to the success of the schools’ policies in achieving pupil progress.” The issues listed by the group are presented in table 2 under three broad headings.

Table 2. Issues commonly seen as instrumental to achieving pupil progress.

Staff related features.	System related features.	Whole school features.
Knowing each child well.	Access to wide, varied and active curriculum.	Inclusion/whole school ethos.
Strong leadership and management.	Detailed and effective pupil tracking.	Positive and proactive approach to external agencies.
Highly valued and well trained staff.	Timed and planned interventions.	Pupil and parental involvement.
All staff responsible for all children.	Robust monitoring systems.	
	Evaluation of impact leading to review of interventions.	

The issues are diverse and might come under a general ‘good practice for educators’ checklist rather than telling us anything specific about these particular schools. They suggest that the good results in these schools were as much a feature of the well organised and monitored education for all children as they were of the specific interventions that were selected by the schools. This hypothesis is further supported by the fact that no single programme or approach seemed common to these apparently

successful schools. The programmes identified ranged from focused synthetic phonic approaches and specific speech and language interventions to interventions simply described as 'multisensory'. Perhaps this should not be a surprise: The most effective intervention programme available, if not used faithfully and accurately, can hardly be expected to deliver results.

Taking a common sense approach it can be easily seen that the 'it's not what you do it's the way that you do it' conclusion is likely to hold some truth a lot of the time, but this is more than simply ensuring that interventions are used 'properly'. These factors identified in these interviews are only part of the picture. Others, identified through school effectiveness investigations, will be mentioned in the next section. The factors may contribute to the variance in scores between schools at least as much as the interventions themselves. This is certainly an area that seems to warrant further research.

Issues for schools.

Two particular challenges for schools are considered here; Firstly schools have been presented with lists of interventions (DfES, 2003) and encouraged to select appropriate interventions according to comparisons between these interventions that are in fact based on very unsound methods. Secondly schools are also charged with the responsibility of ensuring that interventions are the most appropriate ones available for the child, and appropriateness is principally defined in terms of ensuring as high a rate of progress as possible. This requires considerable sophistication in analysing the rate of progress over time.

Taking the first of these two challenges the literature review has demonstrated that simplistic comparisons between research studies of varying quality could well be the source of misleading comparisons. The list of studies compiled by Brooks gives an interesting range of different intervention types and may be very useful in doing just that, but selection of one or another for use in a school on the basis of the ratio gains scores or effect size scores alone would not be sound practice. Schools need to consider a much wider range of factors when thinking about successful interventions. Some examples have been given by the headteachers themselves in the interview results described above. Others can be found in school effectiveness literature (e.g. National Commission on Education, 1996) and might include; Clear whole school policies and good awareness of staff roles and responsibilities: do particular interventions in literacy fit within a coherent whole school approach ? The physical environment of the school: when given individual support do children work in comfortable surroundings in peace and quiet and in a way that values the time given to the work ? The involvement of pupils: are pupils involved in the target setting and review within their individualised programmes ?

Taking the second challenge there is a need to identify the systems and programmes that will allow schools to get the quality of data they need. This may not involve developing new methods and systems as many suitable systems probably already exist (see Solity, Deavers, Kerfoot, Crane, & Cannon, 2000; Wheldall & Siegel, 2004; Reason & Morfidi, 2001 for example), but it will certainly require a critical look at current practice. Pertinent to this question is the issue of whether the group's own strategy for selecting 'successful' schools was effective. A significant weakness of the local authority working group's work is that there was no triangulation or confirmatory data gathered to establish if the 'residual' figures used to select the

schools really did identify those schools where children were making good progress in reading. This could have been achieved by interrogating individual pupil records once in school for evidence of other assessments that corroborate the increases in reading skills seen. Without such triangulation there is always the possibility that, for example, using residual scores identified schools who were generally more effective in managing issues such as key stage assessment tasks. Could some schools be supporting children's performance in national assessment tasks with 'coping' strategies that bypass effective reading, but failing to give children a sound basis for decoding and other basic reading skills? A slim possibility perhaps, but a possibility nonetheless, and one that triangulation could certainly have ruled out.

Concluding comments.

This review of the literature has shown that caution should be taken when selecting effective reading interventions on the basis of the Brooks review: the comparisons between the studies are weak and are often based on inappropriate or flawed evidence. Brooks' work possibly serves as a helpful summary of the types of intervention that can be found in the UK, but no more. Advising schools on selecting appropriate interventions requires consideration of many situational factors, as evidenced by the survey of enabling factors discussed above. As well as these factors schools will want to know that there is some basis for assuming that a particular intervention will make a difference. Such judgements must be made on a more comprehensive analysis that includes consideration of what the aims of the intervention are and on what aspects of literacy the intervention is focused, rather than simplistic comparisons between

interventions based on poor effect size comparisons or simple difference scores.

Troia's paper cited above (1999) is a good example of an attempt to support practitioner's judgements about the quality of research in this area. Although there is not space to do so here, perhaps following Troia's lead, further attempts should be made to update and continually revise benchmarks and guidelines for comparing research of differing quality, with different aims and of varying rigour in this field.

Finally the review has highlighted points that would lead to highest quality assessment of individual progress, such as treating binomial analysis of change with great caution and aiming for polynomial analysis wherever possible. In this way the progress children make can be evaluated effectively. Judgements about whether a programme is delivering the goods or not also need to take into account the many situational factors that both influence any scores that may have been gathered and form the context in which the assessment takes place.

Word Count = 7468.

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Appendix 1

Wave 3 Strategy Group Best Practice Questionnaire

Identification

1. What data does the school collect systematically to measure progress in:
 - a) Literacy?
 - b) Numeracy?
2. What set of criteria does the school use to identify the underachieving cohort who will need Wave 3 intervention?
3. Does the school analyse the underachieving cohort into various AEN categories eg. SEN, Looked After Children, Minority Ethnic Groups, etc.?
4. What proportion of the underachieving cohort has SEN?
5. Is Wave 3 intervention recorded as part of 'additional to and different from' for children with SEN on their IEPs?

Assessment

1. What assessment tools are used to identify baselines against which progress is measured for the underachieving cohort?
2. How and why were these assessments tools chosen?
3. Who carries out the assessments and how?
4. Does the assessment include 'Assessment for Learning'?

Intervention

1. What Wave 3 interventions are delivered?
2. How were the interventions chosen?
3. What advice was sought?
4. Does the whole Wave 3 cohort get the same intervention?
5. Who delivers the interventions?
6. How are they delivered?
6. Are targets set for individual pupils ?

7. How often is progress measured against these targets?
9. How is the delivery of the interventions monitored?
10. How often are the interventions evaluated?
11. Has the intervention ever been changed as a result of review?
12. If so, from what to what?
13. What was the outcome of the change?

Resources

1. Have there been training implications for the delivery of Wave 3 interventions for:
 - a) Subject Co-ordinators?
 - b) SENCO?
 - c) Teachers?
 - d) Teaching assistants?
 - e) Senior Management Team?
2. How have training issues been resolved?
3. Has the delivery of Wave 3 intervention required additional budget for:
 - a) Human resources?
 - b) Physical resources?
 - c) ICT resources?
4. How has this been funded?
5. Has an analysis of value for money been carried out?
6. Does this analysis factor into the review of Wave 3 interventions.

Providing psychological intervention following traumatic events.

Understanding and managing psychologists' own stress reactions.

Introduction.

Including the term stress in the title to this paper needs to be qualified from the outset.

The field of stress is one of the areas where psychology has made a significant contribution in the last century, and is heralded by some as an area of great achievement for psychologists (Sutton, 2005), it is also a much troubled concept in psychology and may have less utility than its popularity would suggest.

Exactly where the term stress originated, in regard to psychological processes at least, is open to some debate. Cooper and Dew (2004) trace the origins of the term back to Hooke's Law of elasticity in the seventeenth century. In terms of psychological, or biological, processes it was only later, with Hans Seyle being an early example in the 1930's, that the term begins to take on a recognisable form for psychologists. Cooper and Dew note that these early examples relied on the notion of disequilibrium in the body. Stress occurs when the organism is forced out of its ideal balanced state, as when a rod might be bent from its natural shape. An interesting and significant omission from Cooper and Dew's history is the work of Kurt Lewin (1935), who used the term 'tension' to describe the process of competing drives or forces in a psychological context. Lewin's work, perhaps more than Seyle's biological slant, grounded the ideas of psychological stress in an analogy between physical processes and psychological processes. It was from roots such as these that the term burst

forward into today's multitude of popular literature and heightened awareness of stress and work, in the family and in health.

The huge popularisation of the term stress apparent today has come at a price. Cooper and Dewe note that by the end of the 20th century some writers argue that the use of the term is "so confused, to be almost meaningless" (2004, p111). Instead they take the bold step of offering an alternative focus for future research; Rather than stress providing a useful avenue for ongoing research and investigation they assert that "It is emotions that may give us the organising concept of the future"(p116). The implications of this will be explored throughout this paper as it investigates the issues for psychologists working in what might commonly be described as 'stressful' situations.

To what extent is stress an outdated concept? Throughout this paper this issue will be explored and the role of emotional processes in coping investigated. It will look specifically at the work and practice context of a team of psychologists who provide crisis intervention support for schools and will consider the literature around Post Traumatic Stress Disorder and Secondary Traumatic Stress Disorder. The paper will consider what are the psychologies and principles that provide strategies for navigating this expanding area of work, what self care advice needs to be given and what training needs to be in place.

In particular it will consider if psychologists should be aware of anything additional and different to normal self care advice when working in highly 'stressful' environments.

The practice context for this assignment.

The roles, structures and procedures for educational psychology services undertaking crisis support work in the United Kingdom have been reported and documented in the professional literature for around 10 years, early examples being Mallon & Best (1995), Houghton (1996), and Carroll et al., (1997). Psychologists in other parts of the world have also been developing similar ways of working (Allen et al., 2002; Nickerson & Zhe, 2004). Some have argued that the growing involvement of educational psychologists in crisis work means that post trauma care should be incorporated in initial training programmes. (Cameron, Gersch, M'Gadzah, & Moyse, 1995, p16).

The need for effective supervision and self care is a common theme throughout. Some highlight that practising in this area without good structures is ethically unsound (McCaffrey, 2004) while unfortunately not expanding on what the key issues for supervision might be or how it might differ from normal supervision practice. Others (Allen et al., 2002) have gone further and identified specific actions that need to be implemented, including increasing academic exposure to topics related to crisis intervention and prevention, providing opportunities for practicum in the field and effective supervision that links the two. The specific content of this 'academic exposure' however is not elaborated on. What is involved in this work and what psychologies are important to include in the supporting literature?

Work completed by a Crisis Support team.

Work undertaken by Crisis Support Co-ordinators in the Psychology Service of one large shire authority has a number of levels. It involves responding to an initial request for involvement, helping make a judgement about the level of support the school will need and, where necessary, convening an operational team to support the school. The work completed directly with schools varies a great deal but some examples of work completed in the last six months include;

- Direct support for teenage victims of rape during an overseas trip,
- Support for teachers in a school following the murder of one of their colleagues.
- Advice and support for staff in a school following the sudden death of both parents of one of the pupils in the school.
- Support for staff and pupils in school who witnessed a fatal road traffic accident.

In the last six months the Service has responded to 24 incidents that have necessitated psychologist deployment to a school to provide immediate support. Other incidents are often supported by conversations with senior managers in school on the telephone without direct deployment. These conversations can involve reassurance, information and practical support such as discussing key parts of a school's action plan following an incident.

The work of this team, and the support provided for crisis events from all psychologists in the Service, demand that stress and trauma are well understood. In the following review of the literature the issues around definitions of 'stress' and the significance of emotions in the processes of coping and adaptation will be discussed more fully. For now it is simply important to highlight that the criteria in this Psychology Service team for deciding if any given incident warrants a response from a Crisis Support team are essentially twofold. Firstly the co-ordinators aim to establish if anyone has directly witnessed or experienced a fatal, near fatal or extremely shocking event. This first consideration stems directly from the diagnostic criteria for Post Traumatic Stress Disorder (NICE, 2006) that identify this as a key risk factor. Secondly the co-ordinator considers the degree of emotional distress that is reported and whether it is 'overwhelming' for the school community. The implications of these criteria are that wherever work is undertaken it would be commonly seen as 'stressful', but given the concerns over the concept of stress already noted perhaps there are more helpful ways to think about the nature of these experiences.

The British Psychological Society strongly recommends supervision for psychologists who undertake work with trauma victims, including for example psychological debriefing (Professional Practice Board Working Party, 2002) and considers unsupervised practice to be unethical. It makes no specific recommendations about the content or model for supervision however noting that "As long as both [supervisor and supervisee] find the relationship helpful, the model used can be varied." (p28). The only stipulation is that the supervisor should have a good working knowledge of debriefing.

In the Psychology Service in question all educational psychologists have a supervision agreement. The aims of this paper include an examination of how supervision should be used to support working in this area.

What are the risks to psychologists?

A cursory scan through the literature on post traumatic stress care and working in intense emotional contexts will identify the very significant issue of the likely impact of care on the supporters, therapists and psychologists themselves.

Burnout amongst psychologists has been the focus of some attention in the professional literature (Rupert & Morgan, 2005; Scott Huebner, 1994) and although closely related is distinct in terms of contributory factors. In studies of burnout key associated factors include low control over work activities, high work hours, high administration or paperwork levels and having to deal with negative client behaviours. Huebner's demographic survey of school psychologists in America finds a link to 'crisis' related work and notes that "The psychologist who is most likely to display symptoms of burnout is young, competitive, egocentric, dissatisfied with her/his role and confronted with organisational stressors such as high student ratios, heavy caseloads and crisis cases", p181.

A person at risk of Secondary Traumatic Stress Disorder has been defined as someone who has "experienced indirectly the primary traumatic stressors through helping those who had experienced these traumas: helping in such roles as a nurse, social worker,

rape counsellor, or other roles and activities” (Figley, 2002) p4. The characteristics of the condition include avoidance of thoughts, feelings and conversations about a client’s trauma, diminished interest or participation in significant activities, hypervigilance, a restricted range of affect and acting or feeling as though the event were re-occurring.

These and a number of related concepts will be discussed more fully in the following literature review, but clearly they present some clear warnings for psychologists working in critical or highly stressful circumstances. In view of these dangers what are the psychologies and principles that provide strategies for navigating this work, what self care advice needs to be given, what training needs to be in place and should psychologists be aware of anything additional and different to normal stress management strategies when working in highly stressful environments?

More specifically this paper aims to identify the specific elements of support that should be in place for psychologists working in this area. Taking a lead from Allen et al., (2002) the paper will identify topics related to crisis intervention and prevention from academic sources that should be included in a supervision process, how opportunities for practicum in the field might contribute to the work of educational psychologists in this area and how effective supervision might link the two.

Review of the literature.

This literature review aims to do three things: Firstly it will explore in more depth the developments in thinking around stress and coping that were introduced in the earlier sections, and focus specifically on the suggestion from Cooper and Dewe (2004) that future conceptualisations of stress should centre on emotion.

Secondly it will consider coping, adaptation to stress and negative emotions and look at models of coping that might be relevant within the proposed emotion centred future. This will include a discussion of traumatic stress.

Thirdly it will examine the literature on these areas that relate specifically to psychologists, expanding upon the two aspects introduced in the preceding section; burnout and secondary traumatic stress syndrome.

To source the literature the electronic database PsychINFO was interrogated using searches that included 'psychologists + disaster' anywhere in the text (70 returns), 'psychologists + crisis' in the title (16 returns) 'psychologists + coping' in the title (18 returns). In addition author and citation searches of earlier references were used, such key texts on psychological debriefing (eg: Parkinson, 1997). A number of references came from hand searches of educational psychology periodicals from the U.K. and school psychology periodicals from North America. Very recent reviews of the stress

literature (eg: Lazarus, 2006) served as a starting point for some other references related to stress.

Stress and emotions.

The notion that 'stress' is no longer a particularly useful construct has already been introduced, but it is important to say a little about why this is felt to be the case. Over 15 years ago Monat and Lazarus (1991) were documenting the unsatisfactory situation researchers in this field found themselves in with "confusion and controversy" seeming to dominate. Monat and Lazarus defined psychological stress as "cognitive factors leading to the perception of threat", p2. However they go on to say that this alone is too broad to be of practical use and that more fine grained descriptions are rife with disagreement. An interesting weakness in this definition is that it sits closely with the notion of threat, and helps to encourage the common view that stress is therefore an essentially harmful phenomenon, particularly when the difference between a threat and a person's reaction to it are not clearly differentiated. Although commonly seen as something to avoid, stress also has a positive side. "It can mobilise us to achieve more than we believed could be accomplished, and it can even lead to a greater appreciation of life. From crisis, too, can come a reorganisation of our lives in ways that leave us more productive, engaged and satisfied than before the crisis." (Lazarus, 2006, p20).

In a very personal and autobiographical essay Lazarus (2006) describes how his career studying stress has brought him to his current conceptualisation of the role of emotion in stress and coping. Emotions, it is argued, are the results of a flow of

continuous feedback in an interaction. They are never stable but constantly being modified on the basis of encounters. This, coupled with the meaning emotional experience has for the individual, create a coping process. Coping is the process by which the experiences are appraised and the emotions regulated.

Emotions at the heart of stress and coping processes.

Lewin's work noted in the introduction (1935) is an early example of stress related concepts being described in terms of psychological situation. His works have been translated into English for publication from the original German. This raises the interesting possibility that the term 'tension' that is used throughout could be a translation of the German word 'Spannung' which can be translated as either stress or tension. (It should be noted that it has not been possible to check this with the German original).

Lewin's theory of dynamic personality is based on physical analogy and 'tension' is introduced in terms of the tension in a coiled spring. The theory relies on the term 'valence' to describe the way different forces are resolved on any person to create behaviour. Thus: "The child is faced by a desired goal, a positive valence. For a negative valence to be effective as an opposing force it must lie in the same direction as this goal". (p158) The language used is technical and rarely incorporates emotional terms. However there are some exceptions such as when Lewin comments that "This simultaneous fear of punishment and hope of reward is characteristic of many situations of the type in question". (p158) So although never stated explicitly in the theory there is an implicit link between the 'valence' in a situation and the emotion

experienced by the person in the situation. Lewin's entire theory is built around the idea of equilibrium, tension and competing valences determining behaviour according to their respective strengths and directions. In figure 1 for example the teenage child (C) at home (H) experiences negative forces when moving away from home, however there is also a positive force which represents the freedom he or she would have outside of the home (F). The child's behaviour is determined by the balance and strength of these forces, and the tension in the situation results from the degree to which the two forces are in competition.

Figure 2 is a more recent conceptualisation of stress and coping from Matthews, Zeidner, and Roberts (2004). Here the balance between situational and personal variables comes together through 'appraisals'. There is still a balance between competing internal and external factors, as with Lewin's theory, but here the process

of resolving the forces that might be emanating from each becomes a choice or decision that is informed by appraisal of the emotional context.

The model presented in figure 3 is the next stage in this conceptualisation whereby the appraisal and choice process becomes a factor of that person's emotional intelligence, which in turn is based on their previous experiences and learning. The model uses emotional intelligence as the mediating factor in stress management.

The important difference then between these models, old and new, is the notion of agency and the notion of strategy choice, which as we explore further will be seen to have particular significance. It can also be seen that the role of emotion was acknowledged, albeit implicitly or indirectly, in early models that used physical processes as their main analogies but becomes explicit and central to the new model. Emotions and emotional competencies may offer a better conceptual framework for considering human reactions in threatening situations than stress has been able to provide, but concepts of emotions driving the process may have been around for longer than is at first apparent.

Stress and Coping.

The section will consider coping, adaptation to stress and negative emotions and look at models of coping that might be relevant within the proposed emotion centred future.

How do people cope with stress, threat, disequilibria and competing emotional forces?

There are a potentially huge number of different strategies that could be listed. At least as many different strategies as there are threats, and then multiply this by the number of personality factors that might affect strategy selection and the number becomes immense. As part of an investigation into children's appraisal and coping in bullying situations Hunter & Boyle (2004) used factor analysis to gain dimensions of coping strategy from seventeen different studies looking at coping. The studies included those looking at adults, children and other particular groups, such as surgical

patients. The number of factors that emerged ranged from 3 to 28. Avoidance was the most commonly occurring strategy, but others included problem focused strategies, emotion focused strategies, active strategies, hostile reaction, wishful thinking, escapism, minimisation, and emphasising the positive.

Within this vast array of strategies it is not uncommon for authors to distinguish between dyadic types, such as problem focused coping and emotion focused coping. (Murtagh & Wollersheim, 1997; Cheng & Cheung, 2005). Cooper and Dewe (2004) however note that attempts to find 'core' distinctions within the classification of coping strategies is fraught with difficulties as it is rarely clear whether any given strategy is fulfilling an emotional role, even if on the face of it the strategy appears to be a practical or task orientated strategy (p101). Furthermore analysis of the factor structure of self report items for coping suffers from further weaknesses in that it fails to incorporate the process of appraisal and strategy choice.

Flexibility, differentiation and integration.

Cheng et al., (2005) looked beyond making choices between different strategies and highlighted the need for flexibility in the choice of coping strategy selected. Flexible coping is associated with better differentiation (defined as being able to see multiple perspectives among people or events) and better integration (defined as an ability to perceive trade offs between alternatives in strategy selection). It is significant that both these areas of skill can be matched to areas of skill identified within emotional literacy or emotional competencies. Seeing multiple points of view, and empathising, is a core aspect in emotional literacy, while seeing the costs and benefits of any given

situation and effective decision making is also identified in the emotional competency literature as a core skill (Matthews et al., 2004, p269).

Blunting and Monitoring.

There are two more factors that need to be considered before moving onto psychologists and secondary or vicarious stress. Lazarus (2006) notes a key distinction between 'avoidance' and 'vigilance'. These are argued to be personality traits rather than coping strategies *per se*. As such they might determine how a person is likely to respond when coping. Interestingly they are conceptually similar to the terms 'blunting' and 'monitoring' used by Cheng et al., (2005, p867). And they refer to the tendency to reduce or avoid the significance of emotional reactions or conversely the tendency to become more focused on the reactions.

As noted above current theories of coping have been criticised for developing taxonomies without considering process. Some attempts to remedy this highlight the mediating role of emotions in the coping process, together with flexibility in the choice of coping strategy that are based on accurate and precise appraisal of situations. Emotions perform a function that is both an alert to threat but also a cue to the nature of coping needed, and to the regulation of the situation over time.

It is important to emphasise another benefit that emotional competencies have in this area. Recalling the model of stress and coping depicted in figures 2 and 3 above it is clear that emotional competencies can be developed through a stressful encounter and that this forms a learning loop back to the appraisal of stress in the next situation that

occurs. This learning process has a more positive aspect to it than coping being seen as a way of mitigating the negative effects of stress and simply 'managing the stressful encounter' (Cooper et al., 2004, p102).

In summary the key factors emerging from the literature that mediate coping include; Emotional competence, a balance between avoidance and vigilance, intellectualisation, coping flexibility and learning from difficult events, seeing the positives.

Trauma. Differences and similarities with general models of coping.

Many descriptions of trauma begin with the notion that someone is overpowered. "At the moment of trauma, the victim is rendered helpless by overwhelming force. When the force is that of nature we call it a disaster. When the force is that of other human beings we speak of atrocities" (Herman, 1992) p33. Other descriptions focus on trauma as a reaction to an event that threatens the integrity and being of the person: "The person experienced, witnessed or was confronted with an event that involved actual or threatened death or serious injury" (Johnson 1998, p54) . In this way events and situations have been described as 'traumatic' irrespective of a person's psychological response to them but rather in terms of bodily incapacitation or a threat to physical existence.

Others present a different hypothesis. Here the nature of the incident might be quite mundane and ordinary, but it may have particular significance for an individual that makes it traumatic. "An experience that is only moderately difficult for one person

may be unbearable and traumatic for another. Thus professionals can not always gauge whether situations will be traumatic or not without observing the reactions of those involved” (Johnson, 1998, p45).

There is a certain sense of déjà vu that comes with considering descriptions of traumatic stress reactions that are so contrasting. The confusion that was noted earlier in the general stress literature, bemoaned by authorities in the area for so long, appears to be repeating itself with traumatic reactions. In the search for consensus a frequent benchmark is the diagnostic criteria for Post Traumatic Stress Disorder. A diagnosis of Post Traumatic Stress Disorder also rests on a description of an “experience outside the range of usual human experiences that would be markedly distressing to almost anyone.” (Figley, 2002). The rest of the diagnosis then depends on the individual showing reactions within the three core areas of avoidance, persistent re-experience and increased arousal. By doing this it seeks to differentiate those whose reactions to the exceptional events are not ‘disordered’ from those whose are. The ‘trauma’ remains the event, which although rather subjectively defined, should be extraordinary. The stress reactions however are detailed in terms of duration, presentation and severity.

Some research findings have shed light on the issues of event vs. reactions. A study of women who had been victims of childhood rape (Epstein, Saunders, & Kilpatrick, 1997) found that two particular factors predicted later PTSD reactions; physical injury and life threat. Despite all the women’s experiences being undoubtedly *traumatic* only particular features of their experiences lead to the particular cluster of reactions within

the diagnostic category of PTSD, and these related to direct threats to physical integrity.

A critical review of psychological theories related to PTSD (Brewin & Holmes, 2003) found that despite the wide range of cognitive, affective and attentional reactions associated with PTSD only one area appears to be unique to the condition, rather than a feature of co-morbid anxiety or depression for example. This unique area was found to be memory responses. These responses consist primarily of flashbacks and intrusive memories.

The Brewin and Holmes review goes on to explore different models for these memory processes. They have been explained as either a different type of memory process or the same type of memory process as general memory but with the feature of being distinct from previously held views, such as beliefs about personal safety. In the latter it is the discordance with other memories in the memory network that produces their distinctiveness. In the former they are an entirely separate memory process and so distinctive in their nature as a result. Brewin and Holmes focus on neuropsychological findings to help establish which view might be more valid. They found that there is good evidence for separate anatomical memory systems being engaged as a result of bypassing the normal routes through the hippocampus when there are high levels of cortisol in the brain, which occurs following intense fear.

If specific memory processes are the unique feature of traumatic reactions successful coping strategies and 'treatment' should, in theory, directly address memory. This is highlighted by guidance to the National Health Service on the treatment of traumatic reactions NICE (2006) which recommends that "interventions such as relaxation or

non-directive therapy, that do not address traumatic memories, should not be routinely offered to people who present with PTSD”.(p17) Instead the guidance recommends cognitive behaviour therapy and eye movement desensitisation reprocessing, both of which focus on a persons memory of an event specifically and the thoughts associated with the memory. There is some research basis for this. McNally, Bryant, and Ehlers, (2003) for example found that cognitive behaviour therapy that relied on exposure to traumatic memories had more empirical support than other methods of support such as psychological debriefing that did not address memory. Cook-Cottone (2004) also reports similar findings relating to children’s post trauma care.

To summarise the model of emotional competencies mediating stress reactions in the general stress literature can not be seen to apply to traumatic stress reactions. The defining feature of traumatic stress is the particular memory effects that are associated with the events, and post-trauma coping and treatment has been found to be most effective where it addresses these specific memory factors.

Psychologists: ideas in practice.

This third section will examine the literature on these areas that relate specifically to psychologists, expanding upon the two aspects introduced in the introductory section; burnout and secondary traumatic stress syndrome.

“Burnout is a result of frustration, powerlessness, and inability to achieve work goals. It is characterised by some psychophysiological arousal symptoms, including sleep disturbance, headaches, irritability, and aggression, yet also physical and mental exhaustion.” (Valent, 2002) p19. This description of burnout appears to offer some utility when thinking about psychologists’ reactions to traumatic situations.

Unfortunately burnout does not provide a helpful model for thinking about the work of psychologists in the area of trauma work. This is partly because the factors leading to powerlessness, frustration or inability to achieve work goals could arise from any number of situations or contexts, not necessarily linked to trauma. A survey study of professional psychologists. Rupert and Morgan (2005) found that the main mediating factors in burnout related to work hours, working conditions and the time spent on administrative tasks.

Typical responses to the issues of burnout focus on changing working conditions or coping strategies. But as has already been noted; “Lists of coping strategies abound in the professional literature, but most focus upon ‘normal’ stressors rather than the special stress of accumulated traumatic images and reminders of human suffering. Personal plans [for post trauma stress management] must address the extent of physiological over-arousal and emotional distress or numbing” (Johnson, 1998, p249).

A second important conceptual model of stress and coping in this area comes from the literature around so called secondary traumatic stress syndrome. Before exploring some of the suggested processes within secondary traumatic stress it is important to introduce the central idea of *countertransference*. Many descriptions of this effect are extremely vague and use weak or seemingly ill-conceived terminology. Consider for example the following definition from Valent, (2002, p19): “It is described as the unconscious attunement to and absorption of victims’ stresses and traumas.” Quite how the absorption takes place is not elaborated on other than to say that it rests on the psychologists use of empathy and engagement with the emotions the victim relates. There is a need, surely, to be more specific than this. Unfortunately such

definitions seem to be fairly common, with another reading “Unconsciously mediated transference and counter-transference reactions inevitably feature in any relationship... it may refer to a) feelings that are the counterpart of the patients feelings and b) to feelings that are counteractions to the patients transference. Thus the therapists unconscious mind understands that of her patient”.(Aveline, 2002)

Recourse to unconscious processes only exposes further weaknesses: How might a process by which emotions are transferred from one person to another, consciously or unconsciously, account for reactions in the receiver that mirror traumatic reactions, where as discussed earlier the impact of specific memory processes appears to be the unique factor.

The use of the phrase ‘compassion fatigue’ is often argued to be synonymous with secondary traumatic stress disorder (Collins, 2003). Compassion fatigue, however, suggests an alternative conceptualisation, one where workers are exposed to the suggested emotional transference over long periods of time in their professional roles which leads to ‘fatigue’ in these emotional capacities.

If repeated exposure to highly negative emotions did have a ‘fatigue’ effect how valid is it to assume that this would lead to the traumatic reactions described by PTSD? One proponent is Figley (2002) who writes that “Compassion fatigue is a more user-friendly term for secondary traumatic stress disorder”. The model for compassion fatigue is that “crisis workers absorb the traumatic stress of those they help”,(p6). Figley argues that PTSD and compassion fatigue are in essence the same, but with one being a primary reaction to the event the other being a secondary or received reaction based on another’s reactions to the event. “The only difference between

PTSD and STSD is that in the latter exposure was to the traumatized person(s) rather than to the traumatic event itself.” (p19).

A significant weakness in the arguments presented by Figley in support of this model is that it fails to distinguish between workers to support ‘in situ’ and those who support immediately following an incident, but in a different physical place. The distinction might be between an ambulance driver who attends the accident scene and a counsellor who works with the victim afterwards. Clearly when the most significant issue in PTSD reactions appears to be memory processes, the sensory experiences of the event itself will add particular issues for the worker at the scene that do not otherwise exist. Most descriptions of STSD do not mention the sensory impressions of the event as a primary feature. Furthermore it is not clear that associated effects such as survivor guilt, sensitised vulnerability or unsettling of plans for the future are as acute in situations where events are reported rather than experienced. Indeed the impact of STSD on therapists has been described as significant but ‘subclinical’ (Eidelson, D'Alessio, & Eidelson, 2003, p144). This indicates that although certain features of the reactions are the same the degree to which they impact on the person, or the degree to which they present as difficulties in that person’s life are not of a similar degree.

Lazarus (2006) describes research that has examined the effects of watching distressing films on research participants. This vicarious stress can be monitored with psycho-physiological measures such as skin conductance. Lazarus notes a number of enabling and inhibiting factors in this process, one being the degree to which the observer can distance themselves emotionally or ‘intellectualise’ the process (this as it

happens can be achieved with certain sound tracks). A second is the degree of scrutiny given to the events depicted, which works in the opposite direction to increase sensitivity. Finally Lazarus concludes that “vicarious emotions are likely to be less intense than they would be in actual life”. (p28)

As secondary exposure to strong negative emotions appears to be the primary mechanism in PTSD, emotional competency, including maintaining emotional distance, might be seen as the central feature of coping for those affected. This could be a vital element in training psychologists for trauma support. Furthermore there are other arguments that, rather than ‘fatigue’ exposure to negative emotional situations could cause incremental learning and skill development and support the individual over time. The basis for this model was introduced earlier in the Matthews, Zeidner and Roberts transactional model where experience of situations provides feedback to emotional competencies that in turn produces stronger skills and competencies.

There is some evidence that the cycle is a virtuous one from a study completed by Murtagh et al., (1997) that tracked psychologists’ moods over a three week period following sessions with depressed clients. According to the ideas of ‘mood induction’ whereby the mood of the depressed client impacts upon the psychologists own mood the psychologists should have shown some synchronisation with their client’s mood and some change towards more depressive mood. However no such link was found prompting the authors to conclude that “It may be that psychologists protect themselves from this effect through the use of problem-focused coping strategies”. (p363) These strategies are described as ‘planful problem solving strategies’.

Positive outcomes from stressful or traumatic experiences have also been documented by Linley and Joseph, (2004) and Linley, (2003). Linley's work has found that, for example, that the integration of affect and cognition that can be achieved through the challenge of having to manage traumatic memories can allow a person to think about an event with "detachment that avoids the compulsion to re-enact the earlier trauma" (p605). Linley discusses this "traumatic growth" within a "wisdom framework" arguing that there are long lasting benefits to the individual from having passed through a traumatic experience.

So in summary drawing parallels between post traumatic reactions and secondary reactions, where a worker is not directly involved in the incident 'in situ' may be difficult to justify. Furthermore current transactional models of stress and coping that highlight emotional competencies provide adaptive mechanisms that allow for growth and resilience rather than erosion and fatigue. Does this mean the risks associated with supporting traumatised people are overstated? This is unlikely and given the risks widely acknowledged in the literature there is a need for an understanding that is additional and different to normal self care advice. The review suggests that more clarity and precision is needed in defining worker's reactions, and that this in turn would allow better self care advice.

Integration with Practice.

This section will begin by looking at the coping strategies and self care practices are recommended for psychologists working with traumatised individuals before going on

to consider supervision and the identification of 'academic content' that would support psychologists developing in this field.

Recommendations for coping in highly stressful situations.

Meldrum, King, and Spooner, (2002) completed a survey of 300 mental health workers in Australia to explore the prevalence and risk factors associated with Secondary Traumatic Stress. They concluded that exposure to clients who have been in life-threatening situations or have experienced threats to their physical wellbeing were the only two conditions significantly associated with STS symptoms. Their suggestion is, quite simply, that additional supervision should be in place for such workers and that supervisors should receive specialist training in PTSD. They also note that regional workers are more at risk than city workers, possibly because of a less populated potential support network. They do not however make specific recommendations about coping strategies or the content of supervision.

Myers & Wee (2002) outline in some detail the strategies that psychologists and other mental health workers should use when working in disaster situations. Many relate to being well prepared, including pre-disaster stress checks and disaster planning. The points they make fall into three broad categories: Firstly there are practical considerations for working which include; effective briefing on nature of disaster, good on –scene supervision, early identification of stress reactions, regular assessments of functioning, task rotation and time limits on involvement.

Secondly come an extensive list of strategies for team working (Table 1). For the purposes of this paper they have been grouped into two categories, those that would appear to link to emotional competencies and those that do not.

Table 1. Strategies for team working from Myers and Wee (2002)

Emotional Competencies	Other
Use humour to break tension. Defuse at the end of a session by sharing thoughts and feelings with co-workers. Pamper yourself during time off. Buddy working Use positive self-talk. Group briefings	Incorporate exercise and activity. Eat regularly. Take deep breaths and then blow out forcefully. Take breaks. Get adequate sleep. Use notebook to make notes

And thirdly there are post disaster considerations that consist of; Planning a timeline of phase-down activities, conducting case-reviews, providing training on common reactions, debriefing staff, providing recognition for staff and developing follow-up protocols.

Parkinson, (1997) considers personal coping strategies for those working with trauma victims. Again these are categorised into those that appear to rely on emotional competencies and those that are linked to other stress management ideas.

Table 2. Personal coping strategies from Parkinson (1997).

Emotional Competencies	Other
Suppressing and repressing emotions. Avoiding disturbing thoughts. Humour. Talking to a colleague, friend or partner. Expressing emotions and feelings.	Preparing mentally. Keeping busy Professional training. Keeping your mind off it. Listening to music. Pursuing hobbies, exercise or sport. Being on your own. Having a sense of purpose.

Parkinson also describes the 'personality' traits that are likely to encourage positive coping; belief in own abilities, optimism, the ability to take a positive attitude to negative events, the belief that challenge brings personal development, the ability to accept limitations, the ability to make cognitive sense of experience and finally not seeing oneself as a victim.

Before moving into the final section it is worth highlighting a theme that can be traced through some of what has been covered. To what extent might detachment from events be a significant factor in successful coping? As was noted earlier the most commonly found coping strategies are those linked to avoidance. This can be avoidance of memories, topics of discussion or people and places. Another key idea has been intellectualisation and being able to gain a sense of cognitive mastery by achieving a more objective and comprehensive overview of what has taken place. Both of these factors can be seen to contribute to a detachment from experiencing the emotional content of an event, and that this detachment is an important and adaptive response.

This poses something of a dilemma; if detachment can protect the psychologist from negative consequences should it be actively promoted when engaging with the victims of trauma if emotional competencies lie at the heart of the recovery process? Huggard, (2003) noted precisely this dilemma in the context of medical professional caring for trauma patients. Huggard notes that there is evidence that detachment does not prevent burnout but argues that there is no reason to conclude from this that it should not be considered as a strategy for preventing secondary trauma reactions. When

describing the qualities therapists need to have Moorey (2002) also acknowledges this dilemma and writes that “Good therapists seem to be able to get inside the client’s cognitive world and empathise while at the same time retaining objectivity”, (p307). This balance between emotional engagement and utilisation of emotional competencies in the process of aiding recovery and the safeness afforded by detachment will be returned to in the next section, but suffice to say it sits at the heart of the recovery process.

In summary this section has considered models of coping from writers describing good practice in ‘the field’ and some emerging issues. In order to achieve the aims of this paper the outcomes will be carried forward into the next section, and integrated with a vision for developing professional practice. These will include; the implications of the emotional competencies model for psychological working, including the resulting dilemma with detachment. Finally from the synthesis of coping strategies and the literature on secondary trauma, the principles for effective self care will be considered in terms of both supervision and training activities to give suggestions for professional practice.

Developing Practice.

This paper set out with the aim of identifying the specific elements of support that should be in place for psychologists working in the area of Crisis Support. Taking a lead from Allen et al., (2002) the paper will now draw together the topics related to crisis intervention and prevention from academic sources that should be included in a supervision process, how opportunities for practicum in the field might contribute to

the work of educational psychologists in this area and how effective supervision might link the two.

Professional guidelines for psychologists demand that “A description of the frameworks and models used to guide supervision meetings” is included in Service Policy Documents. (Quality Standards Working Group, 2006), but as noted above specific models for working in this area are rarely described and are often left to the psychologists own discretion (Professional Practice Board Working Party, 2002). The psychologists providing the kind of service described above can themselves be seen as engaging in the model presented in figure 3 earlier. What would putting emotional intelligence at the heart of a supervision process look like?

Descriptions of the supervision process highlight outcomes such as “gaining a fresh perspective, gaining fresh ideas and resources, being challenged, being observed, receiving feedback and support and gaining opportunities for reflection” for both the supervisor and the supervisee (Carrington, 2004). Adopting a framework for thinking about emotional competencies would be compatible with all of these outcomes, and could, for example, provide a process for exploring the balance between objectivity and emotional engagement. Figure 3, presented earlier, might provide the basis for such a framework and has been added to in Figure 4 with the specific features that would be relevant for work in this area.

Figure 4. A suggested model for use in the supervision for psychologists when working in highly ‘stressful’ contexts. Adapted from Matthews, Zeidner and Roberts (2004).

Preparation for psychologists’ involvement in Crisis Support can be supported by using resources that involve working through prepared crisis scenarios in real time. (Anderson, Hayes, Heather, Ross, McCaffrey, Zacharia 2000) Activities that take professionals through an unfolding scenario based on real or possible events and explore the demands that might be placed on people, the planning that needs to have

taken place, the information that needs to be at hand and the communication links that need to be in place. Such activities could also provide opportunities for building familiarity with the emotional competencies, the intrapersonal and interpersonal strategies, as shown in figure 4, that might be needed to engage in such work effectively.

Conclusions.

This review has proposed that stress is an increasingly outdated concept and considered the suggestion that emotional competencies should provide a focus for psychologists instead. It has taken for its focus work in the field of crisis intervention and has found that although a simple dichotomy of emotional coping and other coping strategies should be avoided there would be advantages in making an emotional competency framework more explicit in both trauma reactions and also in psychologists' own experiences of working in this area.

In conclusion it is possible to suggest that supervisors and supervisees need to consider carefully the coping strategies that might be used by psychologists working in this area. Particular attention should be given to emotional competencies and models of emotional intelligence with particular reference to the use of distancing from the emotional content of the events and the level of engagement a psychologists experiences. Both supervisors and supervisees need to be aware of the risks associated with secondary trauma. In addition scenario based activities could help build familiarisation with the range of protective strategies that can be employed.

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Humour and laughter.

Abstract

This paper reviews some of the literature in the field of humour and laughter that is relevant to child and educational psychology. It will consider methodological and epistemological features of research in what is a diverse and complex body of work. The paper will take an historical perspective and will examine the development of research paradigms over time as well as looking at the contribution of different disciplines and research perspectives. Conclusions from the literature review are considered in the context of educational psychology professional practice. A particular focus will be the DfES guidance document: Excellence and enjoyment, the Social and Emotional Aspects of Learning.

Introduction.

What could an assignment on humour and laughter hope to achieve? Isn't it obvious what role humour and laughter play in psychological life? They occur naturally in human interaction and can be encouraged with wit and irony, jokes, riddles and cartoons. They are positive experiences we seek out and encourage in others we love and associate with. They make things memorable and help communication by reducing tension, identifying shared reference points and creating a sense of shared enjoyment and identification with others. All of the above might be considered 'common sense'. Humour and laughter are features of human culture, explored through literature, art and philosophy throughout the ages. What 'discoveries' could there possibly be that are not already known and what does a psychological perspective add?

In defence of research that explores what is common sense Stafford (2007) argues that if 90% of normal research is worthless because it simply confirms the obvious then this is still worth the time for the other 10%. It might be that within the work that exists there is also a proportion that could help refine and improve common practice. Psychology deals with phenomena that are intricately linked to peoples' day to day understanding of the world and so is intertwined with elements that are familiar and 'obvious'. Exploring and questioning ideas becomes even more important if practice is not to become unreflexive. Indeed common sense might lead to false conclusions, no matter how strong the provenance of an idea within literature and culture. Take for example the 'sudden glory' theory of humour developed by Thomas Hobbes in the 17th Century that laughter is related to surprise and discovery of something or a

triumph of some kind. Although this might be something that is seen as common knowledge now, that jokes include an element of surprise, a critical perspective is taken by Fave, Haddad, and Maesen, (1996) who suggest that “surprise can not be a necessary component of humour , or jokes heard before could scarcely amuse. Yet they often do.” (p64).

Another common sense perspective might be that funny or humorous information is more memorable than other information. There is some research to suggest that this might be the case, with jokes that are rated as funniest at the time of hearing being the jokes that are recalled with most accuracy later (Chapman, 1996). However what is perhaps less obvious is that these memory effects appear to be very context specific, with humour items in the same list being recalled more effectively than non-humorous items in the same list, but not necessarily recalled more effectively than other lists (Schmidt, 2002) leading to the conclusion that it is not the positive emotion that is the key feature of memory effects, but possibly the disruption of other items that are to be recalled.

It is argued here that taking a distinct psychological perspective, and moreover the perspective from child and educational psychology, to a phenomenon such as humour and laughter, will mean that assumptions within this sphere of application can be challenged and tested and areas of application that can be explored or extended. This distinct perspective is true as much for the interface between research literature and the situations it is applied to, as it is for the relevance the ideas have in day to day professional practice of the psychologists themselves. Lane & Corrie (2006) note that the modern scientist practitioner needs to consider what the relative merits of different

theories might be in the context of any given situation and that practitioners should consider their criteria for falsification (p77).

References to humour and laughter in professional literature for Educational Psychologists are sparse. A search of the entire history of three key professional Journals (the British Journal of Educational Psychology, Educational Psychology is Practice, and Educational and Child Psychology) for the words humour, laugh and laughter in the titles or abstract returned no articles at all.

Is this because the study of humour and laughter is considered frivolous and unlikely to lead to any great insights or applications? Lockyer (2006) writes that "*Humour studies continue to be excluded as a recognised and respected academic interest and such sceptical views are underpinned by the assumptions made towards researching a perceivably unworthy and 'unserious' topic.*" (p56).

To explore why research in the field might not be considered "serious" this paper will consider the methodologies and research paradigms that have been applied to it and offer a critical analysis together with suggestions for future research.

The aims of the paper therefore are twofold; Firstly to look at a range of literature in the field of humour and laughter from the perspective of child and educational psychology, with the intention of establishing what might contribute to the practice of educational psychologists. Secondly to consider from the perspective of a scientist practitioner the methodological features of work in this area and how this might have

contributed to both the standing of research in this area and how successfully ideas have been applied to practice in the past.

The practice context for this assignment.

The 2002 Education Act increased schools' responsibility for the welfare of pupils and since then many will have received and implemented guidance on the development of emotional competencies to promote health and wellbeing, to enhance learning and to promote enjoyment (Department for Education and Skills, 2005).

Given that enjoyment and wellbeing are linked together in these national initiatives a search was undertaken to see to what extent humour and laughter featured in the materials. Computer searches of the guidance documents from Excellence and Enjoyment: social and emotional aspects of learning CD-ROM (SEAL materials) for schools (Department for Education and Skills, 2005) were completed using Acrobat Reader search facility. Searches for the words 'humour' and 'laugh' (including laughter, laughing and laughs) were made using a simple analysis of manifest content without any prior hypotheses, as suggested by Bos and Tarnai, (1999). The searches reveal that humour appears twice, and laugh (and variations of laugh) appears 98 times. Table 1 show the frequencies for use of the words in the guidance:

Table 1. Frequency of laugh¹ in the SEAL materials presented by context.

Context.	Frequency
As an act of aggression, including bullying.	34
As an indirect threat, such as making someone feel they don't	19

¹ Including laugh, laughter, laughing and laughs.

Related to getting into trouble by laughter in inappropriate places or	15
Having fun with friends	13
Enjoyment experienced by character or person on their own.	7
Mentioned in pupil activity, with aim of generating laughter.	3
Mentioned in a rule, such as not laughing at others.	3
Coping strategy.	2
Description of laughter, such as describing your own laugh.	2

There are two activities in the guidance that encourage laughter and humour, such as the game Serious Sausages where partners question each other about any topic (for example ‘What are clouds made of?’) The respondent always replies ‘Sausages’. The aim is not to laugh, although clearly much laughing will take place when the game is played.

Laughing and laughter most often appear in the materials in the context of children having to deal with laughter directed at them. Examples illustrating some of these are presented in appendix 1. The materials present a framework for understanding and managing many situations where humour and laughter are threatening. There is no guidance for teachers on the benefits of humour and laughter for wellbeing and teaming or on how to foster positive laughter or humour other than through games and activities that serve as warm up activities.

The links between the SEAL materials and the professional practice of Educational Psychologists are strong. EPs are routinely involved in identifying educational needs that include the social and emotional aspects of children’s learning. EPs may be involved in delivering training to schools and supporting the implementation of the

materials in different ways once schools have begun to use them. The Psychology Service within the large Shire local authority the author works in, for example, has set the implementation of the SEAL materials in schools as a key target in its current business plan. Educational Psychologists are also closely involved with the development of thinking and research into emotional literacy, which forms the foundation of the materials. Some EPs have argued strongly that emotional literacy should be an essential feature of how we think about learning and wellbeing (Sharp, 2001) while others have been more critical of the use of the ideas in education (Humphrey, Curry, Morris, Farrell, & Woods, 2007). An investigation into, and analysis of, research on humour and laughter, which are such core features of our emotional life, could therefore be of great interest to Educational Psychologists.

A review of the psychological literature.

Definitions and terminology

Humour comes in diverse forms, visual and verbal, wit, sarcasm, parody, farce, satire, puns, riddles and jokes. 'Laughter' also has many synonyms such as chuckle, giggle, cackle, guffaw, snigger and titter, the breadth of the terminology reflecting the complexity of our common understanding. Attempting to describe the terminology itself is a huge task, (Roedelein, 2002) devotes 70 pages to the terminological aspects of humour and laughter. For the purposes of this paper it is important to consider psychological definitions of the terms together with a statement about the use of terms here.

The Penguin Dictionary of Psychology (Reber, 1985) defines humour as simply “the quality of being pleasant, sympathetic, amusing or funny.”, while Gregory (1987) notes three distinct uses, stimulus, response and disposition. The response might be aroused from a sense of surprise, relief, affiliation, superiority or incongruity, for example. The stimulus might include any of the forms of presentation listed above.

Definitions within emotional literacy literature are not widespread. Although laughter is touched on in popular texts such as Goleman (1996) it is only to comment that laughter, as part of a positive mood, might have some benefits for thinking:

“Laughing like elation seems to help people think more broadly and associate more freely noticing relationships that might have eluded them otherwise” p85. As with many of Goleman’s claims however there is no substantiation for these claims. Other, more balanced, reviews of emotional literacy such as Matthews, Zeidner, and Roberts, (2004) make no mention of humour or laughter at all.

For the purposes of this paper humour will be thought of as bridging both the stimulus and response aspect of the phenomenon, while less time will be available to explore dispositional or trait aspects of humour. Laughter will be mainly concerned with the response to a humorous stimulus, although other aspects of laughter are considered.

As with terminology to fully explore theories of humour and laughter would be a massive undertaking. An early psychological analysis of the ideas by Greig (1923) lists 75 separate theories of laughter and comedy, while a later list by Roeckelein (2002) lists 76 theories of laughter and humour, many of which are different to those reviewed by Grieg.

Early in the 20th century psychologists saw emotion in structured and rational terms.

Greig (1923) wrote of four 'laws' of emotion;

“1. Emotion arises when behaviour is appreciably hindered.

2. Such hindrance may have its source either externally or internally.

3. The intensity of an emotion depends upon the relative strength of the opposing forces, the greatest intensity being reached when they are almost equal.

4. Success in overcoming the hindrance is felt as pleasant, failure as unpleasant”

(p21)

Greig's theory, working from these laws, was that humour and laughter was a feature of behaviour that was closely linked to either love, or its 'secondary manifestation', hate. From these two core emotions laughter or humour could develop though more specific effects such as surprise and contrast. Humour was seen as an instinctual and powerful feature of psychological experience. Humour and laughter, as emotional experiences, were fundamental markers of being human: “man is an animal which laughs”.

Both descriptions of observations and subsequent theories were largely philosophical in nature with the starting point for analysis being Plato, Aristotle and Cicero (Greig, 1923, p225). The fact that humour and laughter have been the subject of literature, philosophy and art since antiquity demands that we acknowledge their significance to our identity as a species, and possibly also as individuals. Theories such as those of Greig however presented no evidence whatsoever, taking propositions or what would

seem to be conventional wisdom about events in the world as observable fact that could be included in theory without question. This allows statements such as “The laugh is a channel of escape for psycho-physical energy that has become momentarily surplus, through the weakening or disappearance of the obstacle to meet which this energy was mobilized in the first place” (Greig, 1923, p70). All of the assumptions in such a statement should be falsifiable, but assumptions of the nature of psychological energy, the notion that there is a finite capacity for this energy so that there can be a surplus, that such energy must be released and is therefore under pressure are all taken without question.

Nearly a decade later there appears in the literature what seems to be the first, or certainly one of the first, studies of laughter and humour that sets out with a clear systematic methodology. Owsley Wilson (1931) conducted a study of laughter situations in young children by making observational records of situations where laughter was a factor. 601 situations involved infants, 481 involved nursery children and 1033 involved kindergarten children. In addition to this fourteen mothers made detailed records of laughter situations involving their children for three years.

The techniques for analysis of this extensive qualitative data are described only in part, and consisted primarily of classification tables. Using a classification approach Owsley Wilson concluded that there were clear trends in the development of laughter, with younger children and infants tending to experience humour and laughter where their own powers are displayed in some sense, and that laughter at ‘oddities’, violation of conventions or because of teasing becomes increasingly common over time. The ‘educational implications’ of the findings are set out in terms of teaching

children 'emotional control' so that laughter can be seen as a beneficial feature of the child's experience, rather than something of no consequence.

Owsley Wilson comments that "A definite effect of laughter on health has been recognised through the increased respiration, the exercise of various organs in the body, and the increased flow and oxidation of the blood. Laughter serves as a relaxation of mind and body and provides a rest when one lets go of the seriousness of life. From the stand point of mental hygiene the value of laughter is recognised in that it provides an outlet for emotions which, if pent up, might be dangerous." (p42).

These conclusions do not stem from the classification analysis Owsley Wilson undertook and without citation it seems as though their inclusion is another example of conventional wisdom taken as fact. Nonetheless Owsley Wilson sets out recommendations for children's education such as "Purposely provide materials and set up wholesome situations which produce laughter. Plan opportunities for the enjoying and telling of funny situations, experiences, jokes, riddles and word play." Owsley Wilson also comments that adults should "help children to appreciate other people's positions. Some laughter may be cruel. A kindly attitude with fellow feeling is needed", hinting at the significance laughter might have in developing social understanding and empathy while noting the need to balance the cruel aspects of laughter and humour demonstrated so clearly in the SEAL materials.

Literature searches undertaken.

In order to review the psychological literature in the field a number searches of the Psychinfo database were made. Terms used were selected to give a range of coverage

and searches were refined in terms of publication date and whether the research focused on childhood. The numbers of papers returned are presented in table 1.

Table 1. Results from Psychinfo searches for key terminology.

Word in title.	Entire database	2000 onwards	2000 + childhood
Humor	1827	340	23
Humour	168	53	9
Laughter	432	101	10
Laughing	167	47	6
Jokes	127	21	3
Joke	66	18	0
Wit	97	16	0
Satire	29	5	0
Comedy	81	30	0

The majority of research since 2000 has been with adults or other populations (animal studies for example) while a relatively small proportion have focused on laughter and humour in childhood. The strategy for the review began with the 51 papers that did look at child populations. A subsequent step was identifying references in these papers that were likely to be important sources of information, based on descriptions of their content in those papers or by virtue of being cited by several different authors. A further tool in the review process was the use of the ‘Reference guide and annotated bibliography’ for the field written by Roeckelein (2002).

The remainder of the literature review takes papers that were sourced in these searches and sets them out in the following sections; developmental aspects, evolutionary, physiological and neurological aspects, positive psychology, learning and memory, and finally schooling. The sections are presented simply as a way to set out the content for the purposes of this review, rather than necessarily reflecting the

intentions or aims of the original authors. There is some overlap between the content of different sections but each has a particular focus that stands apart from the others. Many other categories might also be conceived of, but the aim here has been to select some that are likely to be relevant to professional practice in Educational and Child Psychology.

Developmental aspects.

A cognitive developmental perspective is taken by Shultz (1996) who examines humour in infancy referencing the observations of Piaget, analysis of infant interactions and analysis of common interactions that very young children smile or laugh about, such as 'peek a boo', tickling or chasing. Although Shultz claims some 'experimental' basis for research the approach taken is essentially inductivist with little attempt at falsifying theory. These might be interesting exercises in viewing theory in reality and building up a richer set of exemplars for theoretical elaboration, but "fallible and incomplete theories that make up [inductivist] scientific knowledge may give false guidance to an observer." (Chalmers, 1982, p34).

Also within this perspective Pexman & Glenwright (2007) examined the ways in which typically developing children grasped the meaning of verbal irony. In a study that looked at 70 participants between the ages of 6 and 10 understanding of irony was explored by presenting puppet show scenarios and asking children to rate their understanding of a puppet's intentions in different scenarios. Defining irony and lies becomes important here and the authors write that "the distinction between irony and lies involves the speaker's intent with respect to the listener's beliefs about the

statement. The ironic speaker does not want the listener to believe that they intend the literal meaning of the statement” (p180). This sophisticated reasoning about other people’s intentions was difficult with only 2 of the 70 participants being able to accurately recognise ironic compliments. Ironic criticism was more easily identified leading to the speculation that ironic compliments may require inhibitory control mechanisms that override the initial suggestion that the person is simply teasing.

Another recent study looking at the developmental aspects of humour is Puche-Navarro (2004) who explored children’s understanding of graphic jokes. The research aimed to “provide empirical evidence that supports the proposal ..[that jokes can be thought of]...as vehicles of higher order mental operations”. (p345). 150 Columbian children between the ages of 2 and 4 took part in a series of experiments that investigated their understanding of differing graphic jokes. This was done by showing the children templates of a joke on a transparency and then giving them different options to finish the joke by overlaying other elements before finally asking them which option they thought was the funniest.

The jokes differed in their content with some showing a ‘mentalistic joke’, or humorous thought that someone has (figure 1), some showing incongruous or unexpected features in a ‘substitution joke’ (figure 2) and some showing complex relationships between one image and another (figure 3).

Figure 1. “Mentalstic joke” from Puche-Navarro (2004) with simple intentional incongruity.

Figure 2. “Substitution joke” from Puche-Navarro (2004) with principle element (superman’s cape) substituted for another item (wings).

Figure 3. “Complex joke” from Puche-Navarro (2004) with incongruity in more than one element (fish holding knife and fork together with the fish that eats and can be eaten).

Puche-Navarro found age differences in understanding that, it is argued, relate to developmental differences in representational understanding of elements in the jokes. The mentalisitic jokes were commonly understood and enjoyed by children of 3 and over, while complex jokes proved to be hardest to understand. Substitution jokes were thought to “function as a transition” between the two levels of understanding. The

conclusion is that such differentiation between the cognitive demands of different jokes, and therefore the information gained about children's own understanding could be a tool for psychologists wanting to explore children's "representational capacity". There are dangers with this research, as having set out to prove a particular point about higher order thinking skills, the jokes selected were of a limited or specific type that, although giving clear results, tell us little about how children's thinking develops but quite a lot about how a researcher thinks it might. A wider selection of jokes could have been used to explore this further and additional information needs to be given about selection of material other than "selected by a graphic material expert" (p347).

The role humour has in social development has also been explored by considering specific populations with identified disability. Reddy, Williams and Vaughan (2002) investigated the ways in which laughter is shared in social situations with children who have diagnoses of autism or Down's syndrome and concluded that "humour and laughter are important aspects of early affective and socio-cognitive development. Young children with autism show difficulties in this domain compared with matched children with Down's syndrome and also compared with previous reports of infants within the first year". (p238). The authors suggest that the aspects of humour that autistic children find difficult (humour related to interpersonal and affective features rather than cognitive) could be the focus for interventions, particularly as other aspects of humour are in place and function well. The data examined in the study consisted of video tapes situations where children were laughing at different stimuli and parent reports of things that children found amusing with the different frequencies of laughing per hour (for example) presented as data. Although a recent paper this has many similarities with the earlier inductivist work described above, where

observations inform the theory presented without falsification. Comparison between the matched groups adds some additional benefits to the conclusions.

Evolutionary, physiological and neurological aspects.

From an evolutionary perspective theorists discuss the possible functions laughter and humour might have had in species adaptation and survival. This appears to be a common approach, possibly because of the recognition of the fundamental nature of laughter and humour to the human condition; but this said, different theorists have very different explanations. Tisljar & Bereczkei (2005) consider humour and laughter to have had functions related to power, and more specifically sexual power. They argue that humour is an early 'fitness marker' for selection of a healthy mate as it indicates creativity, which they assert is a 'reliable indicator of intelligence'. They also note that laughter could be seen as having an important norming influence on individuals within a group, making groups more cohesive and identifying behaviour that is non-typical of the group through laughter in the form of ridicule.

A very different evolutionary perspective however is that of Ramachandran (1998) who asserts that laughter and humour involve a gradual build up of expectation followed by a surprise or twist. This, Ramachandran argues, is indicative of a 'false alarm' where a possible threat is perceived and the humour or laughter serves to indicate to the surrounding group that the threat is actually innocuous or insignificant. Ramachandran has drawn support for this theory by noting that the baring of teeth in an aggressive situation is very close to the bearing of teeth in the smile or laugh, but that in the latter other features of the facial expression are more relaxed.

Panksepp (2000) describes advances in the neurological understanding of laughter that have taken place in the last decade and notes that animal studies have recently identified that rats will show a high-frequency 'laugh' in response to tickling and that this response reinforces behaviour, leading Panksepp to speculate whether a better understanding of the neurophysiology of laughter might reveal a wider range of positive mechanisms for reinforcing behaviour and motivating individuals than is currently available.

Docking, Murdoch and Jordan (2000) looked at the comprehension of linguistic humour in nine adolescents with head injury using an experimental design to compare the understanding of humour in these participants with nine matched controls. They found specific impairments that were linked to processing higher level features of language. Docking et al, note implications for speech pathologists and discuss how jokes and cartoons could be used for both assessment of difficulties following a head trauma and for intervention and recovery.

Laughter is known to enhance immune responses (Pearce, 2004), release tension and reduce stress (Vaid & Kobler, 2000). The neurological aspects of humour and laughter have been the focus of some attention in the last decade as techniques such as functional magnetic resonance imaging have become more widely available. Meyer, Zysset, Yves von Cramon and Alter (2005) identify specific regions of the perisylvian structures in the auditory cortex that are involved in processing laughter. Despite being a region dedicated to speech and auditory perception the parts activated when laughter is heard are distinct from the areas that are activated when a participant hears

speech alone, making the emotional content of the sound a possible source for these differences. Meyer et. al. also found these same areas of the cortex are activated in laughter perception as laughter production.

Positive Psychology.

The use of humour as a coping strategy is noted as a key function by Roenneklein (2002). Humour may provide a coping mechanism in a number of ways. Firstly by providing a strategy for supporting re-appraisal of otherwise threatening stimuli. Secondly it might help increase the strength of social relationships. Thirdly it may counter negative emotions by overriding them with powerful positive affect. Finally it might have a direct physiological benefit. Roenneklein lists extensive studies in support of all of these features, noting for example that the physiological effects of laughter both incapacitate the person laughing by reducing their oxygen supply but also direct attention to the laughter itself rather than any other possible action. This disablement feature is, Roenneklein explains, a possible 'safety valve' that prevents other action when it might be unwise to act.

A different avenue through which humour has become linked with coping is the work of Masten (Masten, 1986; Masten et al., 1999; Masten, 2001). Masten's more recent work has developed the concept of resilience within positive psychology with the notion that it is the ordinary processes of interaction and human relations that can provide a buffer against adversity (Masten, 2001). 'Positive emotionality' has been linked very strongly to resilient outcomes in young people in adversity (Masten et al., 1999) with people who experience high levels of positive affect showing better

outcomes than peers from equally adverse situations. Looking further back to the work Masten completed in the 1980s it is possible to see where this research path began. Masten (1986) reported a study investigating children's social competence and mastery motivation and links to humour. The study participants were 93 children in grades 3 to 6 in two urban schools in America. Their humour appreciation was assessed using exposure to cartoons and ratings of 'funniness and mirth'. In addition they were assessed for humour production (making cartoons funnier) and humour comprehension (explaining humour in cartoons). Masten concluded that "Better humor production, comprehension and greater mirth were associated with academic and social competence" (p469). As interesting as the association is there are always dangers of assuming a causal link in either direction with such research.

Learning and memory.

Roeckelein (2002) notes that interest in humour and children's learning has come mainly from educational television programme production. Cautious conclusions are qualified by caveats noting that they are 'tenuous at best'. Nonetheless it is asserted that short bursts of humour are more effective in helping recall of a message on a television programme than prolonged use of humour. For older children the effect seems to weaken. Although Roeckelein admittedly only sets out to provide a 'research guide' rather than a comprehensive review these comments must themselves be subject to caution, as they are based entirely on one paper by Zillmann in 1983. The wider work of Zillmann spans three decades and has included work looking at children's response to television programmes (Zillmann et al., 1984), the use of humour in classrooms (Bryant, Comisky, Crane, & Zillmann, 1980) and the effects

humour might have on relieving physical discomfort (Bryant et al., 1980). The methodology of much of Zillmann's work is quasi experimental, and typically takes the form of participant groups being exposed to different types of humour or comedy situations, sometimes randomly assigned, and then exposed to a task which acts as an independent variable. Variables have included memory tasks such as recall of information in a television programme (Zillmann et al., 1984) or response to stimulation such as pain tolerance measured by cut off threshold for upper arm discomfort (Zillmann, Rockwell, Schweitzer, & Shyam Sundar, 1993). The conclusions from Zillmann's work therefore represent some of the stronger foundations upon which we might build and that Roeckelein's attention to Zillmann's work might be warranted.

A more recent study looking at the effects humour can have on information retrieval is that of Schmidt (2002) which was briefly mentioned in the introduction. Schmidt reports a simple but effective research design that examined the memory and heart rate effects of humorous and non-humorous content on 30 student participant's recall of cartoons. Cartoon recall was then used as a dependent measure with cartoon type (literal, original or weird) used as within and between subject factors. Lists of cartoons were counterbalanced, participants were allocated randomly to conditions and heart rate monitoring acted as a check on participants rating of 'funniness' on a 7 point scale. Positive memory effects were limited to within subject outcomes rather than between subjects, with information in a list being more memorable than other information in that same list as opposed to the whole list being more memorable than other information in a different list. Furthermore good recall occurred at the expense of recall of other information suggesting a disruption effect that humour might have

on recall of proximal information. Although not carried out in a classroom context a significant implication of this research would seem to be that humour used in a lesson might enhance recall for information linked directly to the humour, but possibly at the expense of other information that needs to be recalled from that lesson.

Schooling.

As has been noted above Bryant et al. (1980) examined the use of humour in classrooms. They noted a number of claims that had been made in the literature before the 1980s that humour made lessons more accessible, that “humour can be highly effective in improving the function of our mental faculties” and that humour might stimulate interest in and attention for an educational message. The authors note that *“In the light of the abundance of articles attempting to build a case for the beneficial uses of humour in teaching, it might be expected that empirical evidence supporting the content in that the employment of humour in educational messages facilitates learning would abound. However such is not the case. Much of the research that has been conducted in this regard has failed to produce unequivocal results.”* (p511).

The study the authors embarked on, having formed this view of the literature, examined the ways that students evaluated teacher presentations that differed according to the use of humour. Their findings, based on correlations between identified factors in the use of humour and the students evaluations, are not entirely unequivocal, suffering as they do from the weakness that other features of the teacher’s performance that are not considered in the analysis might well have impacted on the evaluations. They conclude that humour has benefits for teaching

following the finding that there is a strong correlation between positive evaluations by pupils and use of humour. The question of whether good teachers are funny or whether being funny makes you a good teacher is not answered, but their finding that the effect is only significant for male teachers adds to the likelihood that other mediating variables are at work.

Another example of a study looking at the use of humour in the classroom comes from Horng, Hong, ChanLin, Chang, and Chu (2005) who explored what possible factors might influence the strategies used by three 'award winning teachers'. The study utilized focus group interviews with pupils, in depth interviews with pupils and classroom observation but does not describe how this information was analysed. The researchers comment that "Though humour was never mentioned by the subjects during interviewing, it was observed in class that videos with a humorous aspect were capable of easing student's pressure and encouraging activity responses". This limited role for humour, coming only in the form of presented material rather than teacher attributes, appeared to have disappointed the researchers who then go on to quote other research highlighting the significance of humour. Having found no evidence that teachers used humour to support learning other than by presenting videos to classes the subsequent argument that it is found to be significant elsewhere seems weak. The approach highlights the difficulties thrown up by a lack of clear methodology and inadequate analysis of data.

Discourse Analysis is a research paradigm that has given some insights into humour and its use in school. Mercer (1995; 2000) describes how transcripts of conversations can be used to track the ways in which meaning is 'co-constructed' in conversations,

something Mercer calls 'interthinking'. Mercer (2000) gives examples of children's early encounters with jokes, following a pattern with "the joke teller leading their listener along an apparently predictable line of thought to a surprising, unexpected conclusion" (p131). Mercer argues that *"Verbal humour is not an incidental, peripheral part of human thinking; it is one manifestation of how language is involved with making collective sense of experience. Becoming able to tell jokes involves an appreciation of some important 'common knowledge' the familiarity of your audience with appropriate genres; that if you know something that other people do not, surprises can be engineered; and that your listener's understanding of a word can be shaped by the contexts in which you offer it"* (p132).

Mercer (1995) gives examples of how humour can be seen, at face value, to disrupt a learning conversation, but that in fact it might suggest strength in the relationship between the teacher and the learner. A point Mercer makes is that there are examples where humour can contribute to the construction of knowledge rather than get in the way. One is a conversation between an Aunt and some girls in Zimbabwe (p54). During the conversation humour is used in a predicable and 'scripted' way so that each anticipates the interjection of the other. The humour is used to question the knowledge of the teacher (aunt) who then has the opportunity to reinforce the message being taught by responding to the humorous challenge.

Hobday-Kusch and McVittie (2002) discuss the use of humour in the classroom from what is described as a 'post structuralist' analysis of discourse in the classroom. The methodology consisted of short interviews with two boys followed by observation of the boys in class over a 8 month period, although how much observation took place is

not reported. The boys were selected because they had already shown attempts to use humour in the classroom, although how this was established is not explained. The conclusions are primarily linked to the fact that the boys “chose locations from which to negotiate greater power in the classroom”. The authors note “We are not suggesting that other ways of interpreting classrooms are wrong, merely different”.(p205). Their conclusions are that “It is impossible to predict with certainty who a child will become [and how they will use humour], although it is possible to predict a range of more likely outcomes. With mindful attentiveness, perhaps teachers can increase the possible outcomes for students”. Here again, as with other studies, a qualitative approach has been used to provide some discussion of theory and generate some suggestions for actions. The strength of the suggestions in this case seem to be particularly weak and the methodology particularly vague and poorly reported, meaning that little information of any practical value results other than the suggestion that teachers should be mindfully attentive.

A summary of epistemological issues.

As the literature has been examined a number of epistemological points have been raised. Much work on humour and laughter takes a lead from well established historical and cultural descriptions and analyses of human existence and the contribution humour and laughter make to our wellbeing. This has often lead to quite a simplistic inductivist approach to research where theory has led observation and this has in turn be used to lend support to one or more of the many dozens of theories that exist about humour and laughter. Other difficulties with psychological research tend

to involve unclear or unconvincing results in a field where the issues stemming from operational definitions and specific terminology are complex and subtle.

The use of quasi-experimental research has led to significant contributions in our understanding, but such research is fraught with difficulty because of the complexity of the subject matter. Fave et al. (1996), for example, describe research where jokes about Scots were used as a control in a study looking at Jewish humour and negative Jewish stereotypes, only to find that results were skewed significantly because of Jewish sympathy towards Scots where jokes that included comment on thriftiness made the 'control jokes' unfunny.

The complexity of the phenomena coupled with the diversity of approaches to investigation over the centuries has led to little consensus regarding definition and terminology. This is bemoaned by some who seek more clarity with Wild, Rodden, Grodd, and Ruch (2003) commenting that "Analyses of the cerebral correlates of humour have been impeded by a lack on consensus among psychologists on exactly what humour is, and of what essential components it consists." p2121. The clarity and precision that Wild et. al. set as marks of quality are, in their view, sparse in the literature, leading them to conclude that "Although laughter and humour have been constituents of humanity for thousands of not millions of years, their systematic study has begun only recently". Somewhat ironically their own literature review then highlights that it is a more complex phenomenon than has sometimes been assumed in neurological analyses: "Although over half a century has passed since Penfield first stimulated the cortex [to stimulate laughter] there have been few reports of induced laughter. One possible reason for this is that laughter may be so complex a

phenomenon that it cannot normally be stimulated from any single brain area.” There are dangers then in assuming that what has gone before is confused or insignificant because of a perceived lack of epistemological rigour, when a lack of consensus may simply reflect the complexity of the phenomenon itself.

There have been examples in the preceding review of more successful research programmes such as that of Zillmann over several decades, employing quasi experimental designs in a range of contexts, and Masten’s robust programme looking at coping strategies, and later resilience. These tend to suggest that a combination of research methods used to investigate phenomenon systematically over time as one might typically expect in a developing research paradigm is the most productive. Lockyer (2006) argues that humour research must embrace mixed methods and they “provide much potential for yielding greater understanding of the complex phenomena humour scholars investigate”. It is certainly true that bringing diverse strands of literature together will be very important. As in the story of the blind men each describing an elephant by talking about a different part of the animal, a whole understanding is complex and demands that the reader become familiar with a number of epistemological languages.

Integration, Theory, Research and Practice.

What implications arise from this review of the literature for the work of Educational Psychologists? Given the lack of literature in professional journals that was noted earlier it seems as though it would be helpful to set out opportunities for the use of the ideas in professional practice rather than attempt to review or refine its use.

Considering the developmental work of (Puche-Navarro, 2004) it is interesting to consider if the use of different forms of humour could be incorporated into assessment of children's understanding, giving insights into thinking processes and other aspects of inter and intra-personal understanding. Another opportunity may lie within the suggestions from the neurological work of Panksepp (2000) that there may be other ways to reinforce behaviour using humour or laughter for positive reinforcement.

The opportunities with regards to enhancing learning directly seen to be limited with Mercer (1995) noting that humour can 'get in the way' or disrupt learning conversations, and the research of Schmidt (2002) showing that some any enhancement of learning may be at the expense of other information.

Some of the earliest research considered here was that of Owsley Wilson in the 1930s. This research had its limitations but was already suggesting that there were significant aspects of social competency and understanding of other people's perspectives that developed from young children's understanding of humour. This social competencies arena is perhaps where most of the opportunities lie, particularly when considered alongside the significance of humour in resilient outcomes, and so is explored further by returning to the SEAL materials introduced earlier in this paper.

In the SEAL materials there was widespread use of the word 'laugh' in contexts that related to negative behaviours, whereby the learning points for children is how to manage, understand or avoid the hurtful consequences of laughter. Given the literature reviewed here some questions present themselves as points that could be considered. Does the use of the word 'laugh' in the materials reflect the ways children themselves might talk about laughter in school? What other opportunities might there

be to include other ideas and learning points?

With regard to the first question it is not possible to provide an answer without further research, but it is possible to set out some of the ways the literature review suggests humour and laughter could be built into the development of children's wellbeing and their learning;

- Humour and laughter as an integral part of social skills development.

Establishing ways in which positive humour is taught or encouraged in the same way that other social skills such as turn taking might be.

- Humour and language development.

Developing both the receptive and expressive aspects of language development have been considered in the above literature review, focusing on children's appreciation and understanding of how other people use of humour as well as their own thinking in order to generate humour.

- Humour and laughter as healthy activity.

The positive use of humour and laughter can justifiably be encouraged as healthy activity for children, just as healthy eating might be. This is very different to it being seen as incidental or simply 'fun'.

- Laughter as a coping strategy.

Some reference to this aspect already appears in the SEAL materials with one bully victim modelling the strategy: 'laugh it off'. However there is the potential to increase the range of ways in which children are introduced to positive laughter and humour as ways of moderating negative emotion or social problem solving for example.

Finally a fuller understanding of the role humour and laughter can have in learning

conversations and relationships (Mercer 1995, Hobday-Kushe and McVitte, 2002) could help psychologists explore with teachers how this very fundamental feature of human behaviour might help forge positive relationships, focus attention or reinforce confidence.

Concluding comments.

To say that humour and laughter is a neglected area would not be true, given the huge amount of human literature and experience that focuses on it. However within psychology there has been a reticence to take a serious look at these aspects of our experience in a robust way. This is even more true when children are considered. Within the context of the popularity of emotional literacy and positive psychology this seems to be an odd oversight. Coupled with what might appear to be the use of the ideas in materials for schools in ways that warn children of the dangers of negative humour and laughter, there would seem to be great potential for further work in this area.

Suggestions for future research.

As has already been suggested this is an area that could benefit from additional research. The popularity of positive psychology and emotional literacy have meant that there is a great deal of thought given to how emotional wellbeing can be fostered and promoted in children. Very little has so far focused on the roles of perhaps the most obviously positive aspects of emotional experience. Future research questions might include; How do children perceive the role of humour and laughter in schools?

To what extent can the use of humour and laughter be fostered in children as a positive social skill and a tool for wellbeing, including those children with social communication difficulties such as autistic spectrum disorders? And finally how do children use negative and positive humour and laughter in group processes and social situations?

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Appendix 1: Examples illustrating some uses of laugh, laughing and laughter in the SEAL materials.

A girl in Year 5 is very funny and can make others laugh with the things she says about other people. People want to be her friend because they know that she will make them feel small with her words or jokes if they go against her. Her power comes from her ability to use words to make people feel good or bad.

(Why do people bully: Frequently Asked Questions)

This poem tells the story of a Jewish boy who starts at a new school and joins in the laughter and jokes about Jewish people, despite feeling like a traitor to his family and culture on the inside, in the hope that the others will like and accept him.

(Going for Goals theme, years 3 and 4, page 26)

Putting her fears out of her mind, Shipa carried on with her work for the rest of the morning. At playtime she had to pop back to the classroom to get her coat, but as she passed the window she stopped dead. There were the girls, Samantha, Molly, Shanaz and Katrina, all beside themselves with laughter – spinning round and round in a ridiculous dance singing at the tops of their voices:

*'Consider yourself, well in,
Consider yourself, part of the furniture.'*

As she watched through the window, she heard Molly say, 'And did you see the way she was dancing?' They must have seen her in the toilets practising for the audition. Shipa turned and walked away, back to the playground, tears stinging her eyes. They thought she was stupid. How could she ever have thought she would get the part?"

(Relationships Years 5 and 6, p17)

The little boy who thought to win
Lost his step and slipped.
Trying hard to catch himself
His hands flew out to brace,
And mid the laughter of the crowd
He fell flat on his face.

(Part of a poem from the Yellow set resource sheet, page 26).

They rolled Dane over and pulled both his trainers off. Then they threw them to each other, laughing, smelled them and pulled faces.'Get mummy to wash your feet next time, keener. I don't like my new shoes to whiff.'

(Section of text from 'No Way' interactive presentation exploring bullying, slide number 6)

Everyone thought that Nigel was naughty. He didn't decide to be naughty; he just became naughty. Perhaps it was because Uncle Vernon had laughed when he had pretended to be the man who lived downstairs with the funny walk. When he laughed it made Nigel feel good. So he tried it again and Uncle Vernon laughed some more. He found out that if he copied other people at school that made his friends laugh and that felt good too.

(Changes, years 1 and 2. page 12)